COMPLIANCE COMMITTEE **CC/ERT/ARR/2020/4**
10 February 2020

Report of the individual review of the annual submission of France submitted in 2019

Note by the secretariat

The report of the individual review of the annual submission of France submitted in 2019 was published on 7 February 2020. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/ARR/2019/FRA, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

United Nations

FCCC/ARR/2019/FRA

Framework Convention on Climate Change

Distr.: General
7 February 2020

English only

Report on the individual review of the annual submission of France submitted in 2019*

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual inventory of emissions and removals of greenhouse gases for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol are also required to report supplementary information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention. This report presents the results of the individual inventory review of the 2019 annual submission of France, conducted by an expert review team in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol". The review took place from 9 to 14 September 2019 in Bonn.

* In the symbol for this document, 2019 refers to the year in which the inventory was submitted, not to the year of publication.

GE.20-01816(E)

2001816

Contents

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AAU	assigned amount unit
AD	activity data
ADEME	French Environment and Energy Management Agency
Annex A source	source category included in Annex A to the Kyoto Protocol
AR	afforestation and reforestation
Article 8 review guidelines	"Guidelines for review under Article 8 of the Kyoto Protocol"
B_o	maximum methane-producing capacity
C	carbon
CER	certified emission reduction
CH_4	methane
Citepa	Technical Reference Center for Air Pollution and Climate Change
CM	cropland management
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
Convention reporting adherence	adherence to the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories"
CORINE	Coordination of Information on the Environment
CP	commitment period of the Kyoto Protocol
CPR	commitment period reserve
CRF	common reporting format
DOC_f	fraction of degradable organic carbon that decomposes
DOM	dead organic matter
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
EU ETS	European Union Emissions Trading System
FM	forest management
FMRL	forest management reference level
$F_{NON-CON}$	fraction of non-consumed protein added to wastewater
GHG	greenhouse gas
GM	grazing land management
HFC	hydrofluorocarbon
HWP	harvested wood products
IE	included elsewhere
IEA	International Energy Agency
IEF	implied emission factor
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance for LULUCF	*Good Practice Guidance for Land Use, Land-Use Change and Forestry*
IPPU	industrial processes and product use
ITOM	household waste treatment facilities
KP reporting adherence	adherence to the reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol
KP-LULUCF activities	activities under Article 3, paragraphs 3–4, of the Kyoto Protocol
Kyoto Protocol Supplement	*2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*

LULUCF	land use, land-use change and forestry
MCF	methane correction factor
MMS	manure management system(s)
N_2	nitrogen gas
N_2O	nitrous oxide
NA	not applicable
NE	not estimated
Nex	nitrogen excretion
NF_3	nitrogen trifluoride
NFI	national forest inventory
NH_3	ammonia
NIR	national inventory report
NO	not occurring
NO_X	nitrogen oxides
OMINEA	organization and methods of national inventories of atmospheric emissions in France
OX	oxidation factor
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SF_6	sulfur hexafluoride
SOC	soil organic carbon
SWDS	solid waste disposal site(s)
UNEP	United Nations Environment Programme
UNFCCC Annex I inventory 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 greenhouse gas inventories"
UNFCCC review guidelines	"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention"
WDR	wetland drainage and rewetting
Wetlands Supplement	*2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*

I. Introduction[1]

1. This report covers the review of the 2019 annual submission of France organized by the secretariat in accordance with the Article 8 review guidelines (adopted by decision 22/CMP.1 and revised by decision 4/CMP.11). In accordance with the Article 8 review guidelines, this review process also encompasses the review under the Convention as described in the UNFCCC review guidelines, particularly in part III thereof, namely the "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention" (decision 13/CP.20). The review took place from 9 to 14 September 2019 in Bonn and was coordinated by Lisa Hanle and Jongikhaya Witi (secretariat). Table 1 provides information on the composition of the ERT that conducted the review of France.

Table 1
Composition of the expert review team that conducted the review of France

Area of expertise	*Name*	*Party*
Generalist	Kristina Saarinen	Finland
	John Watterson	United Kingdom of Great Britain and Northern Ireland
Energy	Veronica Eklund	Sweden
	Renata Grisoli	Brazil
	Kaleem Anwar Mir	Pakistan
	Dingane Sithole	Zimbabwe
IPPU	Menouer Boughedaoui	Algeria
	Pia Forsell	Finland
	Erhan Ünal	Turkey
Agriculture	Sorin Deaconu	Romania
	Joel Gibbs	New Zealand
	Bernard Hyde	Ireland
LULUCF and KP-LULUCF activities	Esther Mertens	Belgium
	Dinh Hung Nguyen	Viet Nam
	Valentyna Slivinska	Ukraine
Waste	Pavel Gavrilita	Republic of Moldova
	Excellent Hachileka	Zambia
	Veronica Jakarasi	Zimbabwe
Lead reviewers	Menouer Boughedaoui	
	John Watterson	

2. The basis of the findings in this report is the assessment by the ERT of the Party's 2019 annual submission in accordance with the UNFCCC review guidelines and the Article 8 review guidelines. The ERT notes that the individual inventory review of France's 2018 annual submission did not take place in 2018 owing to insufficient funding for the review process.

[1] At the time of publication of this report, France had submitted its instrument of ratification of the Doha Amendment; however, the Amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, para. 6, pending the entry into force of the Amendment.

3. The ERT has made recommendations that France resolve the findings related to issues,[2] including issues designated as problems.[3] Other findings, and, if applicable, the encouragements of the ERT to France to resolve them, are also included.

4. A draft version of this report was communicated to the Government of France, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

5. Annex I shows annual GHG emissions for France, including totals excluding and including the LULUCF sector, indirect CO_2 emissions, and emissions by gas and by sector. Annex I also contains background data related to emissions and removals from KP-LULUCF activities, if elected by France, by gas, sector and activity.

6. Information to be included in the compilation and accounting database can be found in annex II.

II. Summary and general assessment of the 2019 annual submission

7. Table 2 provides the assessment by the ERT of the annual submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5.

Table 2
Summary of review results and general assessment of the inventory of France

Assessment			*Issue or problem ID#(s) in table 3 and/or 5*[a]
Dates of submission	Original submission: 2 April 2019 (NIR), 8 April 2019 (information additional to the NIR), 2 April 2019 (CRF tables Kyoto Protocol) version 2, 3 April 2019 (CRF tables Convention) version 1, 4 April 2019 (SEF tables: SEF-2018-CP1 and SEF-2018-CP2)		
Review format	Centralized		
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:		
	(a) Identification of key categories?	No	
	(b) Selection and use of methodologies and assumptions?	Yes	L.12, L.16, L.23, L.33, L.35, W.13, W.19, KL.6, KL.7
	(c) Development and selection of EFs?	Yes	E.2, L.8, L.34
	(d) Collection and selection of AD?	Yes	I.21, I.25, A.19, L.15, L.36, L.42, KL.2, KL.4
	(e) Reporting of recalculations?	No	
	(f) Reporting of a consistent time series?	Yes	I.24
	(g) Reporting of uncertainties, including methodologies?	Yes	G.6
	(h) QA/QC?	QA/QC procedures were assessed in the context of the national system (see supplementary information under the Kyoto Protocol below)	
	(i) Missing categories/completeness?[b]	Yes	G.7, L.18, L.19, L.22, L. 25, L.40, L.41

[2] Issues are defined in decision 13/CP.20, annex, para. 81.
[3] Problems are defined in decision 22/CMP.1, annex, paras. 68–69, as revised by decision 4/CMP.11.

Assessment			*Issue or problem ID#(s) in table 3 and/or 5[a]*
	(j) Application of corrections to the inventory?	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?	No	G.7
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?	Yes	
Supplementary information under the Kyoto Protocol	Have any issues been identified related to the following aspects of the national system:		
	(a) Overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements?	Yes	KL.1
	(b) Performance of the national system functions?	No	
	Have any issues been identified related to the national registry:		
	(a) Overall functioning of the national registry?	No	
	(b) Performance of the functions of the national registry and the technical standards for data exchange?	Yes	G.3
	Have any issues been identified related to reporting of information on AAUs, CERs, ERUs and RMUs and on discrepancies reported in accordance with decision 15/CMP.1, annex, chapter I.E, in conjunction with decision 3/CMP.11, taking into consideration any findings or recommendations contained in the standard independent assessment report?	No	
	Have any issues been identified in matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, in conjunction with decision 3/CMP.11, including any changes since the previous annual submission?	No	
	Have any issues been identified related to the following reporting requirements for KP-LULUCF activities:		
	(a) Reporting requirements of decision 2/CMP.8, annex II, paragraphs 1–5?	Yes	KL.2, KL.8, KL.14, KL.19
	(b) Demonstration of methodological consistency between the reference level and reporting on FM in accordance with decision 2/CMP.7, annex, paragraph 14?	Yes	KL.10, KL.11, KL.20
	(c) Reporting requirements of decision 6/CMP.9?	Yes	KL.15, KL.16, KL.22
	(d) Country-specific information to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34?	Yes	KL.5, KL.21
CPR	Was the CPR reported in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18?	No	G.8

Assessment			*Issue or problem ID#(s) in table 3 and/or 5*[a]
Adjustments	Has the ERT applied an adjustment under Article 5, paragraph 2, of the Kyoto Protocol?	No	
	Did the Party submit a revised estimate to replace a previously applied adjustment?	No	France does not have a previously applied adjustment
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for the assessment of conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next review be conducted as an in-country review?	No	
Questions of implementation	Did the ERT list any questions of implementation?	No	

[a] The ERT identified additional issues and/or problems in all sectors as well as issues and/or problems related to reporting on KP-LULUCF activities that are not listed in this table but are included in table 5.

[b] Missing categories for which methods are provided in the 2006 IPCC Guidelines may affect completeness and are listed in annex III.

III. Status of implementation of issues and/or problems raised in the previous review report

8. Table 3 compiles all the recommendations made in previous review reports that were included in the previous review report, published on 12 April 2018.[4] For each issue and/or problem, the ERT specified whether it believes the issue and/or problem has been resolved by the conclusion of the review of the 2019 annual submission and provided the rationale for its determination, which takes into consideration the publication date of the previous review report and national circumstances.

Table 3
Status of implementation of issues and/or problems raised in the previous review report of France

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
General			
G.1	Key category analysis (G.3, 2017) (G.9, 2016) (G.9, 2015) (23, 2014) (20, 2013) Convention reporting adherence	Correct the information in CRF table NIR-3 and improve the description of the key category analysis for KP-LULUCF activities.	Resolved. France completed CRF table NIR-3 correctly in the 2019 annual submission and provided related information on the key category analysis for KP-LULUCF activities in the NIR (chap. 11.6).
G.2	Kyoto Protocol units (G.14, 2017) Transparency	Report information in accordance with decision 15/CMP.1, annex, paragraph 17, in conjunction with decision 3/CMP.11.	Resolved. France provided information that fulfils the relevant reporting requirement in chapter 12.3 of the NIR (p.604).
G.3	National registry (G.10, 2017) (G.22, 2016) (G.22, 2015) Comparability	Establish a previous period surplus reserve as soon as technically possible, which the ERT assumes	Addressing. France, being a member State of the European Union, intends to comply with the European Union commitment to establish a

[4] FCCC/ARR/2017/FRA. The ERT notes that the report on the individual inventory review of France's 2018 annual submission has not been published yet. As a result, the latest previously published annual review report reflects the findings of the review of the Party's 2017 annual submission.

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		will be prior to the 2017 annual submission.	previous period surplus reserve account after the Doha Amendment is ratified.
G.4	NIR (G.1, 2017) (G.4, 2016) (G.4, 2015) (16, 2014) Transparency	Clearly explain the methodologies and the sources of data used for each part of the French metropolitan and overseas territories.	Addressing. The ERT noted the efforts made by France to improve the transparency of the reporting on its overseas territories in the NIR, and information provided on the methodologies and EFs for the metropolitan and overseas territories has been improved (e.g. ID#s E.4, L.2 and L.14 below were raised as issues in the 2014 annual submission and have been resolved in the 2019 annual submission). Where the IPCC methodologies applied for estimating emissions/removals in overseas territories are different from those used for metropolitan France, complementary descriptions of the methodologies are included (e.g. NIR, chap. 3.1 (description of the treatment of energy balances), chap. 5.5.2 (emissions of N_2O from agricultural soils) and chap. 6.4.1 (forests in overseas territories)). Also, in many graphs and tables, the geographical scope is indicated. For LULUCF, a more detailed description of the situation in the overseas territories was provided than in the previous submission. Notably, the national OMINEA database for 2019 now separates EFs for metropolitan and overseas territories (Citepa, 2019). Considering the original issues raised in the review of the report of the 2014 annual submission of France, the ERT considers that the remaining issues yet to be resolved are those described in ID#s L.15, L.27 and W.3 below.
G.5	NIR (G.2, 2017) (G.6, 2016) (G.6, 2015) (18, 2014) Transparency	Remove misleading parameters and equations (not actually used in the inventory) for the LULUCF and waste sectors from the NIR and include more accurate explanations of the country-specific methods, as well as more detailed information on AD.	Resolved. The ERT noted the efforts made by France to improve the transparency of its NIR; for example, the NIR now includes (1) more detailed information on AD for category 5.A (solid waste disposal) (pp.540–543); (2) updated descriptions of the parameters DOC_f, MCF and OX (pp.552–553); (3) tables for forest areas and CO_2 emissions and removals per year (pp.464–466); (4) a more thorough description of the methodology of the NFI (p.469); and (5) data on volumes of HWP category by year (p.535) and half-life values (p.534). The previous ERT noted that the remaining issues to be addressed were ID#s L.1 and W.1 below. As the ERT considers these issues to be resolved, the overall issue is also resolved.
G.6	Uncertainty analysis (G.7, 2017) (G.18, 2016) (G.18, 2015) Transparency	Transparently report the information and assumptions used when defining the uncertainty of AD and EFs in line with the 2006 IPCC Guidelines (vol. 1, chap. 3.5).	Addressing. France provided more details in the 2019 NIR than in the 2017 NIR on the information and assumptions used in the uncertainty analysis (2019 NIR, pp.80–82 and 678–682). During the review, the Party indicated that it is implementing procedures that will improve the transparency of the uncertainty analysis and provided the ERT with a spreadsheet with uncertainties

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
			associated with AD and EFs at the level of disaggregation currently used in the inventory. France explained that it would continue to improve the transparency of uncertainty assessments by adding more details to the NIR, such as references for uncertainties used, where necessary, and stated that it would report such information in the 2020 NIR. The ERT noted that all the uncertainties assigned to individual AD, EFs or estimates of GHG emissions or removals should have a reference.
G.7	Other (G.13, 2017) Completeness	Provide in the NIR the likely level of emissions for each category reported as "NE" on the basis of the judgment that France considers the emissions for the categories to be insignificant, in order to demonstrate that the total national aggregate of estimated emissions for all gases and categories considered insignificant remains below 0.1 per cent of the national total GHG emissions in accordance with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines.	Not resolved. France did not provide the required information in the NIR. During the review, the Party indicated that it had not yet thoroughly investigated this issue, but would do so, and that by end of 2019 it would check on the use of the notation key "NE" and identify where estimates of emissions for categories currently reported as "NE" could have been estimated, and which would require more time and background information to enable the Party to make such estimates. During the review, the ERT assessed the categories currently reported as "NE" and estimated that the total national aggregate of emission estimates for all gases and categories considered insignificant is likely to be below 0.1 per cent of the national total GHG emissions and that no single category reported as "NE" is above the threshold of significance for inclusion of an issue as a potential problem in accordance with decision 22/CMP.1, annex, paragraph 80(b).
Energy			
E.1	1. General (energy sector) (E.2, 2017) (E.18, 2016) (E.18, 2015) Transparency	Provide in the NIR the conversion factors used to transform the values in the original source of AD into the AD used in the estimates and also provide the results of the conversion.	Resolved. France provided the required conversion factors and their sources in NIR table 37. A description of the equivalence of energy units is included in table 36. For those AD for which the Party considers the use of original units to be more appropriate (e.g. waste incineration and coal mining (see ID# E.3 below)), units were consistent with those in the IPCC methodology. The ERT found that France has increased the consistency between the NIR and CRF tables in terms of the use of units, using t and kt rather than Mg or Gg, and concludes that the NIR is sufficiently transparent in this regard.
E.2	1. General (energy sector) (E.4, 2017) (E.21, 2016) (E.21, 2015) Convention reporting adherence	For fuels used in the activities that are key in the French GHG inventory, determine country-specific values for the CO_2 EFs (e.g. for gasoline and diesel oil used in road transportation).	Addressing. France used country-specific CO_2 EFs for the fuels used in the key categories, excluding some fuels used in category 1.A.4.b (residential (other sectors)), for which default factors were used (for coking coal and other bituminous coal, other petroleum products, and liquefied petroleum gas used in stationary installations in residential buildings) (see ID# E.27 in table 5).

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
E.3	1. General (energy sector) (E.23, 2017) Transparency	For waste incineration and coal mining, report emissions in t or kt, rather than in Mg or Gg, while providing AD in the original units and providing the conversion factors.	Resolved. France reported emissions in the energy sector in t or kt and maintained the original units in the OMINEA database for both waste incineration and coal mining.
E.4	Feedstocks, reductants and other non-energy use of fuels – liquid, solid and gaseous fuels (E.5, 2017) (E.7, 2016) (E.7, 2015) (36, 2014) (36 and 37, 2013) Transparency	Include in CRF table 1.A(d) information on where the associated CO_2 emissions from non-energy use of fuels are reported.	Resolved. France included the required information in column J of CRF table 1.A(d) for the entire time series.
E.5	International bunkers and multilateral operations – liquid fuels (E.8, 2017) (E.24, 2016) (E.24, 2015) Transparency	Explain in the NIR the discrepancies between the sectoral and the reference approaches for international aviation (jet kerosene) and international navigation (residual fuel oil and gas/diesel oil) reported in the CRF tables.	Addressing. France explained the discrepancies between the sectoral and the reference approaches for international aviation (NIR, pp.121–122). For international navigation, the Party states in the NIR (p.123) that the geographic perimeter definitions do not explain all of the discrepancies observed between the approaches, and that it appears that the percentages of refuelling distribution in metropolitan France (NIR, figure 16) are not applied in the same way by the national statistical office and Citepa. During the review, France indicated that either an explanation for the differences would be included in the next submission or methodologies would be aligned between the two organizations.
E.6	Fuel combustion – reference approach – solid and other fossil fuels – CO_2 (E.7, 2017) (E.22, 2016) (E.22, 2015) Transparency	(a) Subtract the non-energy use of the fuels in the reference approach to have a consistent comparison with the sectoral approach; (b) Properly identify and allocate the emissions from the industrial gases by origin from the primary fuels, in line with the 2006 IPCC Guidelines and avoiding double counting, and provide relevant explanations in the NIR.	Addressing: (a) The non-energy uses of the fuels were subtracted in the reference approach; however, a large difference still remains between the two approaches for solid fuels (33.9 per cent for 2014 and 36.3 per cent for 2017). During the review, France indicated that there is likely a double counting in the reference approach and it hopes to address this matter in the next submission by implementing a new methodology for iron and steel; (b) France changed the reporting for the reference approach in the 2019 annual submission and emissions from industrial gases are properly allocated under the new approach under liquid fuels. Regarding the recommendation to provide relevant explanations in the NIR, this was related to the description of the differences between the two approaches for other fossil fuels. For other fossil fuels, the Party did not provide explanations in the NIR but indicated during the review that, in the next submission, these differences would be explained and verification of the appropriate consideration of all fossil fuels in the reference approach would be conducted.

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
E.7	Fuel combustion – reference approach – other fossil fuels – CO_2 (E.24, 2017) Transparency	Provide in the NIR information on the difference between the sectoral and reference approaches, that is that the reference approach uses default EFs from the 2006 IPCC Guidelines whereas the sectoral approach uses country- or plant-specific EFs.	Addressing. France changed the EFs for the reference approach and the difference between the sectoral and reference approaches subsequently decreased for other fossil fuels (a difference of 0.09 per cent in CO_2 emissions for 2015 compared with 11.3 per cent for 2015 in the 2017 annual submission). The Party did not provide information in the NIR on the EFs used for other fossil fuels in the reference approach, but explained (NIR, p.121) that the reason for the difference between the two approaches for other fossil fuels would be explained in the next submission.
E.8	1.A.3.b Road transportation – liquid fuels – CO_2 (E.10, 2017) (E.9, 2016) (E.9, 2015) (41, 2014) (42, 2013) (52, 2012) Accuracy	Obtain country-specific CO_2 EFs for gasoline and diesel oil sold in France for the estimation of the CO_2 emissions.	Resolved. France obtained country-specific CO_2 EFs for gasoline and diesel oil in 2017 (see p.130 of the NIR for more information). The country-specific CO_2 EFs are used for all categories in which gasoline and diesel oil (including non-road diesel oil) are used.
E.9	1.A.3.c Railways – solid fuels – CO_2, CH_4 and N_2O (E.25, 2017) Comparability	Report coal used by coal-powered locomotives separately in solid fuels under railways.	Resolved. France included the AD for and emissions from railways under category 1.A.4.a (commercial/institutional) (NIR, pp.88–89). During the review, the Party explained that only a few coal-powered locomotives remain in France and they are used only for tourism. The coal consumption of these locomotives is very small. The amount of coal used in category 1.A.3.c by locomotives is not known, but the total amount of coal consumed in France is covered in the energy balance and the coal used by railways is, according to the Party, most likely included under commercial/institutional activities. The ERT accepts the Party's allocation of coal used by coal-powered locomotives given the national circumstances described (see ID# E.23 in table 5).
E.10	1.A.3.e.ii Other (other transportation) – all fuels – CO_2, CH_4 and N_2O (E.13, 2017) (E.30, 2016) (E.30, 2015) Comparability	Report AD and CO_2, CH_4 and N_2O emissions from ground transport activities in airports and harbours in the category other (1.A.3.e) and explain in the NIR how these AD and emissions are estimated. If reporting AD and emissions under 1.A.3.e is not possible, explain in the NIR why these emissions from ground transport activities in airports and harbours are reported in the category other (1.A.2.g) in the manufacturing and construction subsector.	Resolved. According to the NIR (p.227) and as confirmed by the Party during the review, fuel consumption by and GHG emissions from ground transport activities in airports and harbours are reported in CRF table 1.A.4.a. France is in general unable to distinguish between fixed and mobile installations, resulting in all emissions related to category 1.A.3.e.ii being reported under category 1.A.4.a (commercial/institutional) (see ID# E.25 in table 5). The methodology for estimating emissions is described in the NIR (pp.228–229) and AD and EFs are provided in the OMINEA database.
E.11	1.A.4 Other sectors – solid, liquid and gaseous fuels – CO_2, CH_4 and N_2O (E.26, 2017) Transparency	Include in the NIR the reason the AD used to estimate emissions from military activities are not separately provided, and indicate where the emissions from military activities are included in the submission or	Addressing. GHG emissions from military activities are included in the inventory under category 1.A.4.a (commercial/institutional), which is explained in the NIR (pp.225 and 227), and the ERT concludes that there is no accuracy issue. Although France explained

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		provide estimates for these emissions.	during the review that fuel consumption from military activities is confidential, both the fuel consumption and the GHG emissions are included under "commercial and public services" in the energy balance and in the GHG inventory. The consumption of liquid fuels under "commercial and public services" in the energy balance for 2017 is 115,157 TJ, while it is 144,428 TJ in the CRF tables. The Party explained during the review that the AD and GHG emissions for category 1.A.3.e.ii (light-duty trucks) are also included in category 1.A.4.a, which explains the larger numbers in the CRF tables for the latter category. The Party also stated during the review that it would include a new chapter in the NIR for category 1.A.5.b (mobile (other)) to explain where the AD for and GHG emissions from military activities are included.
E.12	1.A.5.b Mobile (other) – solid, liquid and gaseous fuels – CO_2 and CH_4 (E.27, 2017) Comparability	Correct the notation key for emissions to "IE".	Not resolved. France reported the notation key "NO" for category 1.A.5.b (mobile (other)). During the review, the Party stated that it would change this notation key to "IE" in the next submission.
E.13	1.B.2.a Oil – liquid fuels – CO_2, CH_4 and N_2O (E.15, 2016) (E.31, 2016) (E.31, 2015) Completeness	Estimate and report CO_2, CH_4 and N_2O emissions for the category oil exploration or, if the Party considers them insignificant, report AD and emissions as "NE" and include a justification of the likely level of emissions, as required by the UNFCCC Annex I inventory reporting guidelines.	Resolved. France estimated CO_2, CH_4 and N_2O emissions for oil exploration for the entire time series and included the estimates in the inventory.
E.14	1. CO_2 transport and storage – gaseous fuels – CO_2 (E.28, 2017) Completeness	Estimate and report emissions for this category, including the emissions from the experimental plant, for the whole time series.	Resolved. France reported "IE" for CO_2 injection and CO_2 storage for the entire time series. In CRF table 9, the Party noted that possible fugitive emissions due to injection are included in the fugitive emissions reported under category 1.B.2.b (natural gas). Further, in the documentation box to CRF table 1.C, France clarified that no CO_2 injection or storage occurred between 1990 and 2009. Between 2010 and 2013, CO_2 injection and storage took place in one experimental plant and the CO_2 storage continued between 2014 and 2016, without any new capture of CO_2. In the NIR (p.251), the Party stated that no leakage occurred as a result of the project at the experimental plant and that GHG emissions were considered zero for this activity. During the review, France explained that after the injection period (2010–2013) a post-injection observation period (2013–2016) was defined, with monitoring and measurement of CO_2 leakage from the carbon dioxide capture and storage site, and no leakage of CO_2 was measured. Although the ERT considers that the completeness issue has been resolved as both CO_2 emissions from

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
			injection and storage were evaluated and reported, as appropriate, the use of notation keys and the transparency of reporting could be improved (see ID# E.29 in table 5).
IPPU			
I.1	2. General (IPPU) (I.1, 2017) (I.16, 2016) (I.16, 2015) Transparency	Review the references to weblinks to the OMINEA database in the IPPU chapter of the NIR and, for each of them, decide if replacing the links with the appropriate information would make the NIR more transparent.	Resolved. France reviewed the weblink references to the OMINEA database, including to determine if the links should be replaced with information in the NIR. The Party decided that it is appropriate to record all EFs in the OMINEA database, which is housed on the Citepa website, and include additional parameters in the NIR. The ERT accepts this approach to the use of the weblinks, but concludes that further clarity is needed for the information contained in the OMINEA database (see ID# I.20 in table 5).
I.2	2. General (IPPU) (I.2, 2017) (I.17, 2016) (I.17, 2015) Transparency	If different data sources and methodologies/tiers are used for different periods (e.g. production of lime, ammonia, nitric acid, and iron and steel), provide explanations for such inter-annual changes, where applicable, including information on how the consistency of the time series is ensured when different data sources or methodologies are used to estimate emissions for different periods of time.	Not resolved. The previous ERT noted that sufficient explanation had not yet been provided for lime, ammonia and nitric acid production (the recommendation as it relates to iron and steel production was resolved). While France explained the changes made in the methodologies used across the time series in the 2019 NIR (pp.264 (lime production), 279 (ammonia production) and 280 (nitric acid production)), an explanation as to how consistency is ensured among the different methods and data sources used over time is still missing. The current ERT noted that the most recent emission estimates are based on plant-level data and therefore there are no accuracy concerns resulting from the lack of transparency in the time-series estimates.
I.3	2. General (IPPU) (I.3, 2017) (I.18, 2016) (I.18, 2015) Transparency	Improve the description and justification for all recalculations in the IPPU sector.	Resolved. France reported information on all recalculations made and justified the reasons for making them for all applicable categories in the IPPU sector (see chaps. 4.2.5, 4.3.5, 4.4.5, 4.5.5, 4.6.5, 4.7.5 and 4.8.5 of the NIR). The data on recalculations were provided in an additional spreadsheet file sent as part of the submission.
I.4	2.A.2 Lime production – CO_2 (I.10, 2017) Accuracy	Either estimate emissions from lime kiln dust by applying the correction factor for lime kiln dust as indicated in equation 2.6 of the 2006 IPCC Guidelines or provide a detailed explanation of the tier 2 methodology used for estimating emissions from those industrial plants by type of kiln (e.g. plants produce lime in vertical shaft kilns or another type of kiln, such as rotary kiln) to demonstrate that there is no omission of the CO_2 emissions from lime kiln dust.	Resolved. France estimated CO_2 emissions from lime kiln dust and reported the estimates under category 2.A.2 (lime production). The Party provided information on how emissions from lime production plants are estimated and on the methodologies used to estimate emissions from lime kiln dust for all plants (NIR, pp.263–268).
I.5	2.A.2 Lime production – CO_2	Report emissions from lime production in sugar mills in category 2.A.2 (lime production) and report	Not resolved. France reported only CO_2 emissions from sugar mills under category 2.A.2. Emissions for category 2.H.2 (food and

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
	(I.11, 2017) Comparability	the CO_2 removals in category 2.H.2 (food and beverage industry).	beverage industry) were reported as "NA" for the entire time series. During the review, the Party explained that it has never reported CO_2 removals under either category 2.H.2 or category 2.A.2, and indicated that the transparency of reporting of CO_2 recovery at sugar mills would be improved in the next submission.
I.6	2.B.1 Ammonia production – CO_2 (I.12, 2017) Transparency	Include information in the NIR on the comparison between the total estimated CO_2 emissions (combustion and process emissions) included in the inventory and the estimated emissions reported under the EU ETS.	Not resolved. France did not include in the NIR a comparison between the emissions reported under the EU ETS and the total estimated CO_2 emissions (combustion and process emissions). During the review, the Party reiterated the explanation provided to the previous ERT during the review of the 2017 annual submission regarding its methodological choice; however, this explanation was not included in the 2019 NIR.
I.7	2.B.7 Soda ash production – CO_2 (I.13, 2017) Accuracy	Take into consideration the actual production processes in 1990–2000 to derive an updated EF or EFs that best reflect those processes for those years.	Resolved. Rather than assuming that the CO_2 EF for 2001 is applicable for all years 1990–2000, France updated the CO_2 EF for soda ash production using the EFs for three years: 2001, 2002 and 2003. The Party explained how the EF was derived and used to estimate emissions for 1990–2000 (NIR, p.282). The ERT considers that the production processes in 2001–2003 are sufficiently representative to derive the updated EF as the tier 3 methodology applies from 2001 onward.
I.8	2.C.1 Iron and steel production – CH_4 (I.14, 2017) Comparability	Report CH_4 emissions from sinter production under iron and steel production.	Not resolved. France continues to report CH_4 emissions from sinter production in CRF table 2(I).A-Hs2 and CRF table 9 as "IE", indicating that emissions are reported under category 1.A.2.a (iron and steel). During the review, the Party explained that CH_4 emissions are estimated on the basis of total fuel consumption at all sinter plants and, when they are available, on individual plant data, which do not distinguish emissions from process and combustion.
I.9	2.C.1 Iron and steel production – CO_2 (I.15, 2017) Transparency	Update the description in the NIR by explaining how the estimates for electric arc furnace steel production, basic oxygen furnace steel production, pig iron production and sinter production were calculated, including detailed information on the AD and carbon contents used and their sources.	Resolved. France reported additional information on how the estimates for electric arc furnace steel production, basic oxygen furnace steel production, pig iron production and sinter production were calculated, including information on the AD and carbon contents used and their sources (NIR, pp.296–299).
I.10	2.C.1 Iron and steel production – CO_2 (I.16, 2017) Accuracy	Collect data – from governmental agencies responsible for manufacturing or energy statistics, business or industry trade associations, or individual iron and steel companies – on the following national process materials for the entire time series: steel scraps, electrode consumption and pig iron for electric arc furnace steel	Addressing. France reported that working groups have been established to improve data collection and ensure that data for the entire time series are available for input to emission estimation (NIR, p.307). No timeline for this work was provided.

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		production; steel scraps, iron ore and dolomite consumption for basic oxygen furnace steel production; iron ore and sinter consumed for pig iron production in blast furnaces; and iron ore consumed for sinter production, and include the AD in the country-specific model and provide new CO_2 emission estimates.	
I.11	2.C.1 Iron and steel production – CO_2 (I.17, 2017) Transparency	Explain in the NIR that CO_2 emissions from coal, coke, coke oven gas, blast furnace gas, petroleum coke, natural gas and domestic fuel oil used in sinter production are allocated to the energy sector based on the structure of the available AD in order to ensure clearer fuel use allocation in the relevant CRF tables of the energy and IPPU sectors and to avoid the possibility of double counting of energy consumption.	Not resolved. France did not provide additional information in the NIR on the current allocation of CO_2 emissions based on the AD available. The Party indicated in the NIR (p.307) and confirmed during the review that working groups have been established to improve data collection, ensure the availability of data for the entire time series, and avoid double counting and omissions.
I.12	2.C.1 Iron and steel production – CO_2 (I.17, 2017) Comparability	Investigate ways to report emissions from carbonate use, coke breeze, coke oven gas, blast furnace gas and other materials containing carbon under iron and steel production (2.C.1).	Addressing. France already reports emissions from carbonate use under category 2.C.1; however, emissions from coke breeze, coke oven gas, blast furnace gas and other carbon-containing materials are still reported under category 2.A.4.d (other (other process uses of carbonates)) for carbonate consumption and under category 1.A.2.a (iron and steel) for coke. The Party reported in the NIR (p.307) that working groups have been established to improve data collection and ensure that the allocation of emissions across categories and sectors is in line with the 2006 IPCC Guidelines.
I.13	2.C.1 Iron and steel production – CO_2 (I.18, 2017) Comparability	Report emissions from carbonates and carbonated materials used in electric arc furnace plants under category 2.C.1.a (steel production).	Resolved. France reported CO_2 emissions from carbonates used in electric arc furnace plants under category 2.C.1.a (steel) instead of category 2.C.1.f (other (iron and steel production)).
I.14	2.C.7 Other (metal industry) – CO_2 (I.19, 2017) Comparability	Report emissions from ferrosilicon and silicon production under category 2.C.2 (ferroalloys production).	Resolved. France reported CO_2 emissions from ferrosilicon and silicon production under category 2.C.2 (ferroalloys production) instead of category 2.C.7.
I.15	2.C.7 Other (metal industry) – CH_4 (I.20, 2017) Accuracy	Report CH_4 emissions from ferroalloys production or quantitatively justify that the emissions are insignificant in accordance with decision 24/CP.19, annex, paragraph 37(b).	Resolved. France reported CH_4 emissions from ferrosilicon and silicon alloy production for the entire time series in line with the 2006 IPCC Guidelines. The Party applied a tier 1 EF.
I.16	2.D.1 Lubricant use – CO_2 (I.21, 2017) Transparency	Explain the method used to identify the volume of lubricant used in four-stroke engines in the NIR.	Resolved. France reported CO_2 emissions from lubricant use in four-stroke engines under category 2.D.1, and described the method used to determine the volume of lubricant used in four-stroke engines in its NIR (p.309).

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
I.17	2.D.1 Lubricant use – CO_2 (I.22, 2017) Comparability	Report all emissions from lubricant use except co-combustion emissions from two-stroke engines under lubricant use (2.D.1) in the NIR.	Resolved. France reported all CO_2 emissions from lubricant use, except for co-combustion emissions from two-stroke engines, under category 2.D.1, and described the method used to determine the volume of lubricant used in its NIR (p.309).
I.18	2.F.4 Aerosols – HFC-227ea (I.8, 2017) Transparency	Include information on the assumption and method used for the emission estimation in the NIR.	Resolved. France included in its NIR (p.329) information on the methodology and assumptions used for estimating emissions from aerosols, and explained the reason for the peak in the HFC-227ea EF identified in 2005.
I.19	2.G.1 Electrical equipment – SF_6 (I.9, 2017) Accuracy	Obtain AD reflecting the information on the new electric operators and also distinguishing the producers, transporters and distributors of electricity, using the investigation that is currently under development, and recalculate SF_6 emissions from electrical equipment for the entire time series.	Resolved. France reported information in CRF table 2(II)B-Hs2 on all operators, both those operators already utilizing the electricity grid (estimated by Enedis) and those newly added since 2008, and it distinguished producers, transporters and distributors of electricity in its NIR (pp.336 and 340). The Party also reported on all operators in its overseas territories. France made a recalculation of AD and SF_6 emissions on the basis of new AD from the new operators for all relevant years (i.e. 2008–2015).
Agriculture			
A.1	3.A.1 Cattle – CH_4 (A.2, 2017) (A.8, 2016) (A.8, 2015) (75, 2014) Transparency	Include information on the typical animal mass (average) for dairy cattle in the NIR and in CRF table 4.A.	Resolved. France reported information on the typical animal mass (average) for dairy cattle in NIR table 67 and in CRF tables 3.As2 and 3.B(a)s1.
A.2	3.A.1 Cattle – CH_4 (A.3, 2017) (A.20, 2016) (A.20, 2015) Transparency	Provide in the NIR disaggregated values on a livestock subcategory level for animal body weight and any other important parameters used (e.g. net energy intake, organic matter intake, feed digestibility) and explain the approach used to calculate weighted average values.	Addressing. France provided disaggregated data on the animal body weight of cattle in NIR table 67, and data on average milk yield in NIR table 68. Additional data on key parameters (gross energy intake and methane conversion factor) are included in NIR table 69. However, the NIR does not include data on all important parameters (e.g. organic matter intake and feed digestibility). The Party provided an explanation of the approach used to calculate weighted average values in the case of gross energy intake (p.367).
A.3	3.B Manure management – CH_4 (A.8, 2017) (A.23, 2016) (A.23, 2015) Transparency	Provide in the NIR a more detailed description of the methodology used to estimate average methane conversion factors for manure management in liquid systems (e.g. by providing a temperature time series and/or a regional temperature distribution map).	Resolved. France included data on regional average annual temperatures and a regional temperature distribution map in the NIR (figure 103).
A.4	3.B Manure management – CH_4 (A.9, 2017) (A.24, 2016) (A.24, 2015) Comparability	Estimate the amount of CH_4 that is still emitted during anaerobic digestion of animal manure and report it under the respective MMS in the CRF tables, and report only the amount of manure actually still treated as liquid manure under "liquid systems".	Resolved. The ERT confirmed that the total CH_4 emissions reported in CRF table 3.B(a)s1 include the CH_4 not captured from anaerobic digestors and that only that manure actually treated as liquid manure is included under liquid systems. The ERT noted that it is not possible to report CH_4 emissions from manure

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
			management under specific MMS in the CRF tables.
A.5	3.B Manure management – CH_4 (A.10, 2017) (A.24, 2016) (A.24, 2015) Comparability	Report the corresponding calculation parameters (methane conversion factors, animal waste management system distribution) under MMS digesters in CRF table 3.B(a)s2.	Not resolved. In CRF table 3.B(a)s2, the calculation parameters methane conversion factors and allocation (percentage) corresponding to the CH_4 emissions associated with MMS digesters are not reported separately; instead, the notation key "IE" is used for these parameters. During the review, the Party communicated to the ERT that it now has a good knowledge of biodigesters, and that in France manure digestion is promoted and this practice may increase in the future. Further, France indicated that it plans to report this practice in the CRF tables in the next annual submission.
A.6	3.B Manure management – CH_4 and N_2O (A.24, 2017) Accuracy	Use the data obtained through the survey in 2015 to extrapolate the AD on MMS between 2008 and 2015. If that is not feasible, until such time when France can incorporate the new survey data, conduct a thorough analysis of whether the existing approach undermines the penetration of the liquid slurry technology and either justify that the method used to obtain AD for the latest years is in accordance with the 2006 IPCC Guidelines or modify the method to ensure that the extrapolation best reflects current practices (e.g. by taking into account the trends in penetration of various MMS observed in similar countries).	Resolved. The data from the survey in 2015 containing information on the MMS profile in France were used in estimating CH_4 and N_2O emissions from liquid slurry systems for 2008–2015. A description of the survey can be found in the NIR (pp.643–646). The ERT noted that no major changes to emissions resulted from the use of the new survey data.
A.7	3.B.3 Swine – CH_4 (A.11, 2017) (A.22, 2016) (A.22, 2015) Transparency	Provide in the NIR a transparent explanation of the methodology used to calculate the weighted average volatile solid excretion rate of the total swine population (e.g. by providing volatile solid excretion rates and livestock population statistics on a disaggregated subcategory level).	Resolved. For swine, France reported data on volatile solid excretion rates and livestock population statistics on a disaggregated subcategory level in the NIR (pp.349 and 383). The MONDFERENT (study on non-digestible organic matter and integral fermentation) II methodology, which was applied to calculate the volatile solids, was described in the NIR (p.380).
A.8	3.B.3 Swine – N_2O (A.12, 2017) (A.26, 2016) (A.26, 2015) Transparency	Explain in detail in the NIR how the Nex rates for swine are estimated (e.g. by providing Nex rates on a livestock subcategory level together with the respective population statistics).	Resolved. France provided detailed data and information on Nex rates and population for swine in the NIR. A thorough description of the method used to derive the Nex rates is also included (pp.349 and 362).
A.9	3.B.4 Other livestock – N_2O (A.14, 2017) (A.27, 2016) (A.27, 2015) Transparency	Report all direct N_2O emissions related to poultry manure management under "MMS other" in CRF table 3.B(b).	Resolved. France reported all direct N_2O emissions related to poultry manure, including manure from ducks and geese, in CRF table 3.B(b) under "MMS other".
A.10	3.B.4 Other livestock – N_2O (A.25, 2017) Accuracy	Use corrected AD for pasture, range and paddock under manure management in CRF table 3.B(b) and ensure the consistency of the AD used to estimate N_2O emissions	Resolved. France included corrected AD for the nitrogen handled on pasture, range and paddock under manure management in CRF table 3.B(b); the data are consistent with the AD used to estimate N_2O emissions from

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		from urine and dung deposited by grazing animals (3.D.1.3) and from pasture, range and paddock under manure management in CRF table 3.B(b).	urine and dung deposited by grazing animals in CRF table 3.D for the entire time series.
A.11	3.C Rice cultivation – CH_4 (A.22, 2017) Accuracy	Revise the estimate of CH_4 emissions by applying the correct conversion factor of organic amendment, taking into account the management practices of the overseas territories.	Resolved. Following the 2017 inventory review, France corrected the conversion factor of organic amendment; the value now corresponds with the practice "Straw incorporated long (>30 days) before cultivation" in the 2006 IPCC Guidelines (vol. 4, table 5.14). During the review, the Party communicated to the ERT that the management practices and reporting of rice cultivation in the overseas territories are still to be improved for future submissions. Recognizing that rice cultivation is not a key category, and that the correct conversion factor of organic amendment has now been applied, the ERT considers this issue to be resolved and welcomes the efforts made by France to further improve the estimation of CH_4 emissions from rice cultivation taking place in the overseas territories.
A.12	3.D Direct and indirect N_2O emissions from agricultural soils – N_2O (A.17, 2017) (A.15, 2016) (A.15, 2015) (81, 2014) Transparency	Improve the QC activities and correct the discrepancies in the nitrogen input to soils between the NIR and the CRF tables (differences for the nitrogen input to soils from synthetic fertilizers and animal manure; correct error for nitrogen deposited in the NIR).	Not resolved. Differences remain between CRF table 3.D and NIR table 100 in the values associated with the nitrogen input from the application of inorganic fertilizers to cropland and grassland and with the nitrogen input from manure applied to soils. These differences do not result in an accuracy issue.
A.13	3.D.a.2.a Animal manure applied to soils – N_2O (A.26, 2017) Accuracy	Estimate N_2O emissions reflecting the nitrogen volatilized as NH_3 and NO_X and the nitrogen leached at farms from horses.	Resolved. The N_2O emissions now reflect the nitrogen volatilized as NH_3 and NO_X and the nitrogen leached at farms from horses.
A.14	3.D.a.2.a Animal manure applied to soils – N_2O (A.27, 2017) Accuracy	Estimate N_2O emissions in the overseas territories taking into account the nitrogen volatilized as N_2 and the nitrogen in bedding.	Resolved. The N_2O emissions in the overseas territories take into account the nitrogen volatilized as N_2 and the nitrogen in bedding.
A.15	3.D.a.5 Mineralization/ immobilization associated with loss/gain of soil organic matter – N_2O (A.28, 2017) Completeness	Report in CRF table 3.D "NO" for AD and emissions for all years in which the SOC pool was a net sink (1991 and 1994–2015) and "NE" for 1990, and report emissions for 1992 and 1993.	Resolved. In the 2019 submission, the SOC pool was a net sink for the entire time series, and consistently with the previous recommendation, France reported "NO" for AD and N_2O emissions for the entire time series.
A.16	3.D.a.6 Cultivation of organic soils (i.e. histosols) – N_2O (A.19, 2017) (A.30, 2016) (A.30, 2015) Transparency	Provide in the NIR a transparent explanation of the methodology used to estimate the area of organic soils in the agriculture sector.	Resolved. France transparently described the methodology used for estimating the area of organic soils in the agriculture sector in the NIR (p.420).
A.17	3.D.a.6 Cultivation of organic soils (i.e.	Ensure the consistency of the areas of organic soils reported under the	Resolved. The areas of organic soils reported under category 3.D (direct and indirect N_2O

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
	histosols) – N_2O (A.19, 2017) (A.30, 2016) (A.30, 2015) Accuracy	agriculture sector and the LULUCF sector.	emissions from agricultural soils) in the agriculture sector and under categories 4.B (cropland) and 4.C (grassland) in the LULUCF sector are consistent for the entire time series.
A.18	3.D.b.2 Nitrogen leaching and run-off – N_2O (A.30, 2017) Convention reporting adherence	Provide correct AD reflecting also the overseas territories in CRF table 3.D.	Resolved. In CRF table 3.D, the AD associated with N_2O emissions from nitrogen leaching and run-off also reflect the situation in the overseas territories.
LULUCF			
L.1	4. General (LULUCF) (L.1, 2017) (L.3, 2016) (L.3, 2015) (86, 2014) Transparency	Revise the structure of the NIR to avoid including unnecessary information, while not providing the relevant information (e.g. reasons for not applying directly the IPCC methods to estimate carbon stock changes and non-CO_2 emissions; input data for equations and sources of country-specific data).	Resolved. The ERT noted that the original recommendation was related to France's use of 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" and the IPCC good practice guidance for LULUCF. The structure of the NIR now follows the outline provided in the UNFCCC Annex I inventory reporting guidelines, and since the 2014 annual submission, several improvements have been made to increase the transparency of the NIR (e.g. ID# L.5 below, referenced in the previous review report, has been resolved). In the 2019 NIR, France provided references to the 2006 IPCC Guidelines for each method and generally provided sufficient information on country-specific data and the selection of default EFs and assumptions (see ID# L.29 in table 5).
L.2	4. General (LULUCF) (L.2, 2017) (L.5, 2016) (L.5, 2015) (88, 101, 2014) (86, 2013) Completeness	Include all territories so as to cover the entire geographical area in the annual submission, and harmonize the different sources of data to ensure consistency, completeness and accuracy of reporting.	Addressing. Areas of all territories in France have been described and their emissions included in the inventory, and the sources of data are referenced in the NIR (table 104), with the exception of Saint Barthelemy (area 24 km^2) and Saint-Martin (area 53 km^2). The NIR mentions that the areas of Saint Barthelemy and Saint-Martin are included with Guadeloupe (p.462); however, the table on page 451 and text on page 449 note their emissions as "NE". According to the 2006 IPCC Guidelines, countries must report all emissions and removals from all their territories or use the notation key "NE", if relevant. During the review, France clarified that the assumption in the NIR that Saint Barthelemy and Saint-Martin are included with Guadeloupe is incorrect; in fact, emissions/removals from these territories are currently not estimated and are not surveyed under the LULUCF sector.
L.3	4. General (LULUCF) (L.3, 2017) (L.6, 2016) (L.6, 2015) (89, 2014) (87, 2013) Transparency	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.	Not resolved. A simplified Monte Carlo methodology based on averaged parameters at the national scale was used to estimate uncertainty. During the review, France provided uncertainties associated with the AD and EFs and indicated which studies contain

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
			the standard deviation and sample errors related to the NFI and the TERUTI land-use survey. The ERT noted that including this information in the NIR would increase the transparency of the results of the uncertainty analysis. The Party indicated that it would consider improving the transparency of the uncertainty calculations in the next NIR.
L.4	4. General (LULUCF) – CO_2, CH_4 and N_2O (L.4, 2017) (L.22, 2016) (L.22, 2015) Transparency	Report in the NIR complete information on data sources, assumptions and methodologies used. In particular, ensure that the following information is reported: (a) The land use and land-use change matrix (from 1990 to the latest reported year) using the relevant categories from TERUTI; (b) The time series 1971–1989 of the land use and land-use change matrix (equivalent to CRF table 4.1); (e) Information on how the monitoring system is able to identify land-use changes occurring in the unmanaged forest land from those occurring in the managed forest land; (f) Information on how the monitoring system is able to identify disturbances occurring in the unmanaged forest land from those occurring in the managed forest land and whether the time series of data used for calculating the background level of natural disturbances, and its margin, includes GHG emissions from natural disturbances that occurred in unmanaged forest land; (g) The time series from 1990 to the latest reported year of the area subject to each of the KP-LULUCF activities; (h) The time series from 1990 to the latest reported year of the biomass average gross annual increment (t C/ha) in forest land remaining forest land and in land converted to forest land together with the area across which the value has been calculated, disaggregated at the level of regions and forest types applied for calculating the national total biomass gross annual increment; (i) The time series from 1990 to the latest reported year of the mortality (t C/ha) in forest land remaining forest land and in land converted to forest land, disaggregated at the level of regions and forest types applied for	Addressing. France progressed on some issues that are part of this overall recommendation, as follows: (a) Not resolved. During the review, the Party communicated to the ERT that all land-use matrices are available and could be included in an annex to the next NIR; (b) Not resolved. During the review, the Party communicated to the ERT that all land-use matrices since 1970 are available and could be included in an annex to the next NIR; (e) Addressing. France assumes that 5 per cent of forest land is unmanaged land on the basis of information on accessibility from the NFI, and assumes that this percentage is constant over time. The Party noted in the NIR that the current land monitoring system does not make it possible to distinguish managed and unmanaged land (p.462). During the review. France indicated that a decision has been taken at the national level to report all the territory (both metropolitan and overseas) as 100 per cent managed, which will resolve this issue in the next submission. The Party also referred to recent relevant studies (Robert, 2016; Sampère, 2017) and ongoing activities mentioned in the improvement plan in the NIR (p.461); (f) Not resolved. As in paragraph (e) above, France indicated during the review that a decision has been taken at the national level to report all the territory (both metropolitan and overseas) as 100 per cent managed, which will resolve this issue in the next submission; (g) Not resolved. The tables on the area of land subject to each of the KP-LULUCF activities are not included in the submission. During the review, France stated that they could be included in an annex to the next NIR; (h) Addressing. France reported total gross increments (kt/year) for 2007 by forest type and zone for the metropolitan territory only in the NIR (table 129). The time series since 1990 of the increment fluxes (the result from equation 6 on p.470 of the NIR) accompanied by the corresponding land areas from the NFI (adjusted with data from the TERUTI land-use survey for the split between land remaining and land converted) by region and forest type was not provided. During the

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		calculating the national total biomass gross annual increment; (j) The time series from 1990 to the latest reported year of average biomass carbon stock (t C/ha) disaggregated at the level of regions and forest types applied for calculating the national total biomass gross annual increment; (k) For each natural disturbance type, the time series from 1990 to the latest reported year of areas of forest land subject to natural disturbances disaggregated at the level of regions and forest types applied for calculating the national total biomass gross annual increment; (l) The time series from 1990 to the latest reported year of the total harvested wood subdivided by land of origin (i.e. metropolitan France and overseas territories), and land use of origin (i.e. forest land, possibly subdivided between FM and AR lands, cropland and grassland); (q) Information on EFs to clarify the timing of collection, the methodology applied for data collection, the method (including any assumption and equation) applied for the elaboration of EFs from rough data; (s) For each country-specific method, information, consistent with the 2006 IPCC Guidelines, on the verification of the method's estimates.	review, France stated that the time series could be included in an annex to the next NIR; (i) Addressing. France reported examples of total gross mortality (kt/year) for 2007 by forest type and zone for the metropolitan territory only in the NIR (table 130). During the review, France stated that the required time series could be included in an annex to the next NIR; (j) Resolved. During the review, France clarified that it does not use the biomass carbon stock values for calculating the total biomass gross annual increment; (k) Addressing. The areas affected by natural disturbances are included in the time series since 1990, disaggregated by region (NIR, table 136). However, only fire disturbances are considered and disaggregation is not by forest type. Further, it is not specified whether controlled burning accounts for some of the disturbances from fire; (l) Addressing. Harvested wood in the French metropolitan and overseas territories is reported in tables 132 and 142 of the NIR, respectively. Table 132 also provides information on industrial wood and fuelwood (table 142, for overseas territories, does not). Data are not further subdivided by land use. During the review, the Party stated that updated tables could be included in an annex to the next NIR; (q) Addressing. France has provided additional information related to the methodology and timing for data collection (pp.469–473) and for the EFs associated with net increment rates in tables 129 and 130 (example 2007) in the NIR. For the EFs in tables 116 and 119 (i.e. the above-ground biomass stocks to calculate the EFs for losses due to changes between forest categories), the rough data cleaning and assumptions for the EFs have not been included; (s) Resolved. The French LULUCF inventory is based on tier 2 methodologies. The only tier 3 method that was previously used was for HWP but France now applies a tier 2 methodology for this category.
L.5	4. General (LULUCF) (L.5, 2017) (L.23, 2016) (L.23, 2015) Transparency	Remove from the NIR all references to equations that are not used in the estimation of emissions and removals in the LULUCF sector, including NIR equations 20, 21 and 22.	Resolved. The equations for applying the stock difference method, which is not used by France, have been removed from the NIR.
L.6	4. General (LULUCF) (L.6, 2017) (L.24, 2016) (L.24, 2015) Transparency	Report in the NIR information on the uncertainty value and associated probability density function for all parameters and data used to prepare the GHG estimates. This could be achieved by, for example, including	Not resolved. The information in annex 7 to the NIR, tables 212 and 213, has not been elaborated on since the previous NIR. During the review, France noted that uncertainties for LULUCF were estimated using a Monte Carlo approach. The uncertainties of the AD

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		in the NIR, for each land use and land-use change category, a table that includes, for all parameters and data used for preparing the GHG estimate, the average value, the unit, the assigned confidence interval, together with information on how the confidence interval has been calculated, and information on the type of probability density function applied to the parameter/data uncertainty.	(Agreste, 2015) and EFs (see https://inventaire-forestier.ign.fr) that serve as inputs to the Monte Carlo analysis were provided to the ERT. The ERT considers that including them in the NIR would resolve this issue.
L.7	4. General (LULUCF) – CO_2 and N_2O (L.9, 2017) (L.25, 2016) (L.25, 2015) Convention reporting adherence	Verify, consistently with the 2006 IPCC Guidelines, the estimates prepared with the country-specific SOC values.	Resolved. The French LULUCF inventory is based on tier 2, not tier 3, methodologies. Provision of verification information is therefore not applicable.
L.8	4. General (LULUCF) – CO_2 and N_2O (L.10, 2017) (L.25, 2016) (L.25, 2015) Accuracy	Apply the IPCC default SOC values and SOC change factors for those territories (e.g. overseas territories), for which country-specific factors have not been calculated.	Not resolved. France did not apply IPCC default SOC values and SOC change factors for the overseas territories in the emission/removal estimates and they are not provided in table 123 of the NIR. During the review, France indicated that carbon stock data are only available for forests for the overseas territories.
L.9	4. General (LULUCF) – CO_2 (L.32, 2017) Transparency	Provide in the NIR detailed reasons for any recalculations, and state the actual improvement from a methodological point of view (e.g. refining of parameters and methodological changes, correction of errors, as appropriate).	Resolved. France explained in the NIR all the recalculations for each LULUCF category, consistent with the requirements in the UNFCCC Annex I inventory reporting guidelines.
L.10	Land representation (L.11, 2017) (L.26, 2016) (L.26, 2015) Accuracy	Identify in the metropolitan territory and overseas departments the areas of organic soils and the land use to which those areas are subject. To achieve this, consider using the French soil map or data contained in international soil databases combined with the CORINE land-cover map (see https://www.eea.europa.eu/publications/COR0-landcover) or other land-use/land-cover databases.	Resolved. France identified area data for organic soils by using the national soil map and looking for overlaying histosols with the CORINE land-cover map to identify the areas in the metropolitan territory and overseas departments. The areas and the applied EFs used for the emission/removal calculations are provided in table 125 of the NIR. The Party stated in the improvement plan of the NIR that it aims to collect new data with improved distinction between the organic soils, mineral soils and wetlands definitions (p.463).
L.11	Land representation – CO_2 and N_2O (L.33, 2017) Transparency	Define the data source and method for the organic soils area estimation.	Resolved. France provided the AD and EFs, with references, and assumptions for the estimation of the area of organic soils from drainage and rewetting in the NIR (p.460 and table 125). An equation from the Wetlands Supplement was used for the estimation.
L.12	Land representation – CO_2 and N_2O (L.33, 2017) Accuracy	Identify land representation of cropland accurately in order to report emissions/removals taking into account the 20-year transition period for land conversions. In doing so, depending on available resources, consider (1) improving the	Addressing. France currently reports emissions and removals from organic soils under cropland remaining cropland and grassland remaining grassland (NIR, table 125). Emissions/removals from organic soils under wetlands were not reported (the notation key "NE" was used). During the

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		spreadsheets for allocation of the known total organic soils area across all relevant land-use subcategories; or (2) linking land use and soils by implementing approach 3 for land representation provided in the 2006 IPCC Guidelines through enhanced use of spatial features from the TERUTI-LUCAS survey (see http://agreste.agriculture.gouv.fr/enquetes/territoire-prix-des-terres/teruti-lucas-utilisation-du/) (e.g. either rely on TERUTI-LUCAS soil information or match its spatial grid with (organic) soils map and derive grid plots where organic soils occur, then improve the land-use conversion matrix with this information).	review, the Party indicated that further work was needed to resolve this issue.
L.13	Land representation – CO_2 and N_2O (L.33, 2017) Accuracy	Report consistent AD for the estimation of CO_2 emissions under LULUCF and N_2O emissions under the agriculture sector.	Resolved. The area of organic soils for agriculture (cropland and grassland) is now consistently reported in the agriculture and LULUCF sectors (139.06 kha in 2017).
L.14	4.A Forest land – CO_2 (L.12, 2017) (L.9, 2016) (L.9, 2015) (91, 2014) Transparency	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.	Addressing. In the NIR, France briefly described the combined use of the TERUTI land-use survey and the NFI (p.462) and separately described methodologies for them (pp.440–451 and 468). The reasons for the nomenclature changes in the TERUTI survey over the years were described in the NIR (box on p.444); however, details related to changes in the sample size of each year's survey were not provided. During the review, the Party clarified that differences in the land area of forest between the two assessments are due to slightly different operationalization of the forest definition, different plot sample sizes and a different frequency of sampling by different teams. The Party also provided the sample sizes (40,000 plots for TERUTI are under forest, which is less than the 80,000 plots in the NFI). The ERT considers that it is important to provide the assessment of the sample size in the NIR to justify the Party's decision to use TERUTI as opposed to the NFI. The ERT therefore decided that France does not sufficiently justify how it has dealt with the potential increased uncertainty from the decision to not use the information from the NFI on forest area for the land-use assessment. Further, France does not discuss the effect of the inconsistency between the AD and EFs on the final calculated emission results. According to the Party, consistency in land monitoring is a broad issue that is planned to be tackled in future submissions.
L.15	4.A Forest land – CO_2 (L.13, 2017) (L.11, 2016) (L.11, 2015) (95, 2014) (90, 2013) Accuracy	Assess and report on the potential impact of using NFI data on carbon stocks and carbon stock changes, calculated over the NFI area, together with the TERUTI areas data set.	Not resolved. France did not provide clarification in the NIR of the implications of using NFI data together with TERUTI land-use survey data. During the review, the Party explained that this issue falls under a broad

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
			investigation of land-use monitoring. Different sets of data capable of tracking land use exist, but it is not easy to compare them owing to differences in nomenclature, time period covered and spatial resolution. No further assessment of the potential impact is foreseen by France.
L.16	4.A Forest land – CO_2, CH_4 and N_2O (L.14, 2017) (L.27, 2016) (L.27, 2015) Accuracy	Harmonize the application of the unmanaged forest definition across the entire national territory and, in doing so, ensure consistency between the reporting of managed forest land and of FM and complete coverage of forest lands in the metropolitan territory, regardless of their accessibility.	Not resolved. The definitions of managed and unmanaged forest have not been updated and the consistency of reporting of managed forest land and FM has not been ensured. During the review, the Party indicated that a decision has been taken at the national level to report all the territory (both metropolitan and overseas) as 100 per cent managed and with this decision it intends to resolve this issue in the next submission.
L.17	4.B.1 Cropland remaining cropland – CO_2 (L.18, 2017) (L.17, 2016) (L.17, 2015) (105, 2014) (98, 2013) Completeness	Provide estimates of the net emissions and removals for living biomass of perennial crops by applying at least a tier 1 method from the IPCC good practice guidance for LULUCF.	Resolved. France reported the net emissions/removals for living biomass associated with changes between different types of perennial crops (annual crops, vineyards and orchards) in the 2019 NIR for metropolitan France and assumed an equilibrium in the case of no changes between subcategories (e.g. vineyards remaining vineyards).
L.18	4.B.2 Land converted to cropland – CO_2 (L.19, 2017) (L.18, 2016) (L.18, 2015) (102, 2014) (98, 2013) Completeness	Apply at least a tier 1 method from the IPCC good practice guidance for LULUCF to estimate the net CO_2 emissions and removals from land converted to perennial crops.	Addressing. France estimated the emissions/removals for living biomass associated with land converted to cropland (NIR, p.510). The Party continues to report "NE" in CRF table 4.B for gains in forest land converted to cropland and gains and losses in wetlands converted to cropland (see ID# L.37 in table 5).
L.19	Cropland converted to other land uses – CO_2 (L.20, 2017) (L.19, 2016) (L.19, 2015) (103, 2014) Completeness	Provide estimates of biomass losses from conversion of perennial crops to other land uses (including cropland converted to wetlands, settlements and other land).	Addressing. France estimated biomass loss from the conversion of perennial crops to other land uses (including cropland converted to wetlands and settlements), except for other lands, for which all categories are reported as "NE". During the review, the Party explained that the reported emission/removal estimates include both the metropolitan territory and the overseas territories.
L.20	4.B Cropland – CO_2 and N_2O (L.21, 2017) (L.29, 2016) (L.29, 2015) Completeness	Applying at least the tier 1 IPCC methodology, report estimates of biomass and soil carbon stock changes, and associated CO_2 and N_2O emissions, in: (a) Cropland remaining cropland, reporting emissions and removals associated with changes in cropland subcategories; (b) Land converted to cropland, reporting also emissions and removals from conversions of land uses other than forest to cropland subcategories.	Resolved. France estimated the carbon stock changes in living biomass and mineral soils for cropland remaining cropland between subcategories and land converted to cropland, including associated CO_2 emissions/removals and N_2O emissions from forest, grassland and settlements converted to cropland, with a simplified stock difference method using carbon stock values in equilibrium for different crop subcategories. The reported emission/removal estimates include both the metropolitan territory and the overseas territories (see NIR table 145).

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
L.21	4.B Cropland 4.C Grassland 4.E. Settlements – CO_2 (L.22, 2017) (L.31, 2016) (L.31, 2015) Transparency	Report in the NIR complete information on the calculation/selection of each biomass density value.	Addressing. France provided biomass density values only for tree species in forest land in the NIR in order to calculate the harvests from those lands (NIR, p.482). It has not provided biomass density values for "treed croplands" (i.e. cropland that has some tree cover, but that is still defined as cropland). During the review, the Party mentioned that the densities for perennial crops were not used because the estimation of emissions in the biomass pool was not based on harvest statistics, rather on a stock difference method (see ID# L.37 in table 5). France did not document how the default values (in NIR table 141) for the overseas territories were averaged to obtain the values that appear in the NIR (p.497).
L.22	4.C Grassland – CO_2 and N_2O (L.25, 2017) (L.30, 2016) (L.30, 2015) Completeness	Applying at least the tier 1 IPCC method, report estimates of biomass and soil carbon stock changes, and associated CO_2 and N_2O emissions, in: (a) Grassland remaining grassland, reporting emissions and removals associated with changes in grassland subcategories; (b) Land converted to grassland, reporting also emissions and removals from conversions of land uses other than forest to grassland subcategories.	Addressing. France estimated the carbon stock changes in living biomass and mineral soils for grassland remaining grassland and land converted to grassland, including emissions/removals from the conversions of cropland and settlements to grassland for metropolitan France. Emissions/removals are also estimated for the overseas countries and territories, except for grassland remaining grassland. The Party did not estimate N_2O emissions due to mineralization associated with carbon stock changes in soils in grassland remaining grassland, but did report N_2O emissions for land converted to grassland (CRF table 4(III)). France did not provide sufficient information in the NIR and during the review on if – and if so how – the carbon stock changes in living biomass and mineral soils for the overseas territories were estimated.
L.23	4.D Wetlands – CO_2 and N_2O (L.26, 2017) (L.32, 2016) (L.32, 2015) Accuracy	Either report information to demonstrate that the methodology used to estimate carbon stock changes in land converted from and to wetlands produces more accurate and/or precise estimates than the IPCC methodology (2006 IPCC Guidelines, vol. 4, equation 2.26) or apply the IPCC methodology for estimating GHG emissions and removals from drained (wetlands converted to other land uses) and rewetted (other land uses converted to wetlands) organic soils.	Addressing. France estimated the emissions from living biomass for land converted to wetlands based on the IPCC default methodology. All the soils are now identified as organic soils and the areas are included in CRF table 4.D, for which the methodology for draining and rewetting applies. However, the CO_2 removals and N_2O emissions from those organic soils due to rewetting were not estimated, and the CH_4 emissions from ditches were also not estimated. During the review, the Party clarified that a new land monitoring system would provide better data on land-use changes on organic soils, and indicated that it would consider calculating the fluxes due to rewetting in its next submission.
L.24	4.F.2 Land converted to other land – CO_2 and N_2O (L.27, 2017) (L.33, 2016) (L.33, 2015) Accuracy	Classify under the category other land, only land without significant carbon stock.	Resolved. The category of other land in France contains land areas with low carbon stock changes, such as bare land, rocks, glaciers and other lands not included in the other categories.

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
L.25	4.F.2 Land converted to other land – CO_2 and N_2O (L.28, 2017) (L.33, 2016) (L.33, 2015) Completeness	Estimate SOC losses and associated CO_2 and N_2O emissions originated from conversions of cropland, grassland, wetlands and settlements to other land either applying the IPCC default assumption (i.e. all SOC lost in the conversion), or applying a country-specific SOC factor for other land.	Not resolved. France did not estimate the SOC losses and associated CO_2 and N_2O emissions for living biomass and soils from conversions of cropland, grassland, wetlands and settlements to other land.
L.26	4.G.3 Other (HWP) – CO_2 (L.29, 2017) (L.34, 2016) (L.34, 2015) Transparency	Complete CRF table 4.Gs2 and report in the NIR the background data (i.e. the time series of HWP domestically produced from domestic wood) for each HWP category as well as the equations of the country-specific method and the factors applied in the method for converting the HWP weight or volume in tonnes of carbon.	Resolved. In 2019, France no longer applied the tier 3 methodology, instead applying a tier 2 methodology for HWP. Half-lives are displayed in the NIR (table 156) and production data are provided for 1990 onward in table 157.
L.27	4(V) Biomass burning – CO_2, CH_4 and N_2O (L.30, 2017) (L.21, 2016) (L.21, 2015) (107, 2014) Transparency	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, including for overseas countries and territories.	Addressing. France estimated losses from living biomass and provided information about the EFs for metropolitan France in the NIR (pp.486–487). While areas of fires in the metropolitan and overseas territories (the areas covered under the Kyoto Protocol) were provided in NIR table 136, some overseas territories (New Caledonia, French Polynesia, Saint-Martin, Saint Pierre and Miquelon) of France that are not covered by the Kyoto Protocol were not reported under the Convention.
L.28	4(V) Biomass burning – CO_2, CH_4 and N_2O (L.31, 2017) (L.35, 2016) (L.35, 2015) Transparency	Provide information on the progress of the collaboration between the National Institute of Geographic and Forest Information and Citepa to refine the calculation of the types of burned forests using data from the PROMETHEE database.	Not resolved. France did not provide information in the NIR on the progress of this collaboration. During the review, the Party indicated that increasing the accuracy of the monitoring of forest fires is part of the improvement plan (NIR, p.500).
Waste			
W.1	5. General (waste) (W.1, 2017) (W.2, 2016) (W.2, 2015) (111, 2014) (102, 2013) 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.	Addressing. France included more information in the NIR, specifically, which geographical coverage tables and graphs refer to the Convention and which to the Kyoto Protocol. The figure in the 2013 annual submission referring to the amount of household waste has been updated to clarify that it covers the area under the Kyoto Protocol (NIR, p.544). However, the Party did not explain in the NIR the parameters and methodologies used for estimating emissions from industrial wastewater treatment in the overseas territories.
W.2	5. General (waste) – CH_4 (W.13, 2017) Transparency	Include in chapter 7.1 of the NIR an overview of all wastes generated and the extent to which it is recycled, incinerated, landfilled or treated otherwise (including waste types specified in the 2006 IPCC	Addressing. France reported that more than two thirds of the waste generated comes from the construction sector (NIR, p.540). This waste is classified as mineral waste (waste 40 in the statistical nomenclature of waste), other non-hazardous minerals (waste 42) and land (waste

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		Guidelines, vol. 5, chap. 3, para. 3.5 and ensuring the inclusion of wastes that are considered inert).	46). Mineral waste is inert waste; wood waste is excluded. During the review, the Party explained that the mineral component of the waste is disposed in dedicated landfills for inert material and therefore it produces no CH_4 emissions. France also explained that ADEME, the agency in charge of energy and waste, applies its own QA/QC procedures to its household waste characterization surveys and household garbage treatment facility (household waste treatment facility) surveys and its publications. In response to a query from the ERT about including an overview of all wastes generated and the extent to which they are recycled, incinerated, landfilled or otherwise treated, the Party explained that it is not possible to include an overview such as the one specified in the 2006 IPCC Guidelines (vol. 5, para. 3.5) as neither the French Statistical Office nor ADEME publishes the required information. The ERT acknowledges the Party's response, but notes that implementing the previous recommendation is essential to enable France to demonstrate that all waste generated is appropriately considered in the annual GHG inventory. The ERT believes that the waste flows in France should be considered further in the next in-country review.
W.3	5.A Solid waste disposal on land – CH_4 (W.2, 2017) (W.10, 2016) (W.10, 2015) (117, 2014) (105, 2013) Transparency	Provide more information on the waste composition allocation to the degradation categories used for the estimation for all years of the time series by adding 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.	Addressing. France included in the NIR a table (table 163) that shows the total waste landfilled by degradation category for 1990, 1995, 2000, 2005 and 2010–2017. However, the Party did not include this information for the entire time series, and it did not explain how the ITOM categories are matched to the degradation categories used for the estimation of emissions. During the review, France explained that the ADEME survey contains more than 100 waste categories – too many to incorporate into NIR tables. The ERT believes that the waste flows in France should be considered further in the next in-country review.
W.4	5.A Solid waste disposal on land – CH_4 (W.3, 2017) (W.12, 2016) (W.12, 2015) (119, 2014) Transparency	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.	Not resolved. France did not provide the required information in the NIR. During the review, the Party explained that the fraction of waste rejected from composting plants refers to waste after composting. Rapidly degradable waste is removed upon composting and what is left are the more woody remains of garden and park waste. The ERT agrees with this waste being classified as moderately degradable, and that the Party need only provide the justification in the NIR.
W.5	5.A Solid waste disposal on land – CH_4 (W.6, 2017) (W.20, 2016) (W.20, 2015) Accuracy	Include in the NIR the information about the survey realized to define the CH_4 recovery values used for the solid waste disposal CH_4 emission estimations.	Resolved. France included more information regarding CH_4 recovery in the NIR, explaining the system in place in the country since 2013 for reporting CH_4 recovered, which allows the annual quantities of CH_4 captured since 2012 to be estimated using a

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
			bottom-up approach. Data for 2008–2011 were obtained through operator questionnaires, and the flared and recovered quantities were then backcast to cover 1990–2008 (NIR, p.553).
W.6	5.A Solid waste disposal on land – CH_4 (W.7, 2017) (W.21, 2016) (W.21, 2015) Convention reporting adherence	Report the correct value used for DOC_f in the CRF tables.	Not resolved. France continues to report the values for degradable organic carbon instead of DOC_f in CRF table 5.A.
W.7	5.A Solid waste disposal on land – CH_4 (W.14, 2017) Accuracy	Apply the suggested values (for unmanaged SWDS and traditionally managed SWDS an MCF of 0.5 and an OX of 0 and for managed SWDS an MCF of 1 and an OX of 0.1) and revise estimates of CH_4 emissions or improve the justification of the values of MCFs and OX used for the revised estimates.	Resolved. France used MCF and OX values in accordance with the 2006 IPCC Guidelines (vol. 5, tables 3.1 and 3.2). Specifically, the Party applied for managed SWDS an MCF of 1 and an OX of 0.1; for traditionally managed SWDS an MCF of 0.5 and an OX of 0; and for unmanaged SWDS an MCF of 0.4 and an OX of 0. An OX of 0.1 was applied for traditionally managed and unmanaged SWDS that are closed. During the review, France explained that according to a French regulation for closed SWDS, remediation techniques, such as covering the waste with one metre of soil and monitoring waste evolution and associated air and water emissions, must be applied. The ERT agrees with the Party's reporting.
W.8	5.A Solid waste disposal on land – CH_4 (W.14, 2017) Transparency	Include in the NIR a clear description of landfill types and the application of MCFs and OX trends that are used for the emission estimates.	Resolved. France included in its NIR a description of landfill types (pp.546–547) and the parameters used for the emission estimates, including the MCF and OX (p.552).
W.9	5.A Solid waste disposal on land – CH_4 (W.14, 2017) Transparency	Use the terminology as used in the 2006 IPCC Guidelines (unmanaged SWDS instead of uncontrolled SWDS) and traditionally managed SWDS instead of managed, non-compacted SWDS in the NIR.	Not resolved. France continues to use its own terminology: uncontrolled landfills, controlled compacted landfills and controlled not-compacted landfills.
W.10	5.A Solid waste disposal on land – CH_4 (W.15, 2017) Transparency	Include a description of the amount and nature of the mineral waste landfilled, along with a justification for the assumption that this waste results in negligible CH_4 emissions.	Resolved. France reported that more than two thirds of the waste generated comes from the construction sector (NIR, p.540). This waste is classified as mineral waste (waste 40 in the statistical nomenclature), other non-hazardous minerals (waste 42) and land (waste 46). Mineral waste is inert waste; wood waste is excluded. The ERT agrees with the Party's assessment.
W.11	5.B. Biological treatment of solid waste – CH_4 and N_2O (W.8, 2017) (W.22, 2016) (W.22, 2015) Accuracy	Include in the NIR clear information on the AD used and about the source used as reference for the CH_4 and N_2O EFs.	Resolved. France provided in the NIR (p.556) information on the AD used (from ADEME) and corrected the reference for the CH_4 and N_2O EFs to align with that given in the inventory.
W.12	5.B.2 Anaerobic digestion at biogas facilities – CH_4 and N_2O	Justify the use of the current methodology for estimating CH_4 emissions from anaerobic digestion, or quantify the emissions by applying	Resolved. During the review, France explained that the 2006 IPCC Guidelines (vol. 5, chap. 4) state that CH_4 emissions from such facilities due to unintentional leakages during process

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
	(W.16, 2017) (W.22, 2016) (W.22, 2015) Accuracy	the EF from the 2006 IPCC Guidelines, volume 5, chapter 4, table 4.1, directly to the amount of waste digested, since the amount of waste digested is available and specified in CRF table 5.B.	disturbances or other unexpected events will generally be between 0 and 10 per cent of the amount of CH_4 generated and that in the absence of further information, 5 per cent should be used as the default value. The ERT noted that anaerobic digestion at biogas facilities is not a key category in France, and agreed with the Party's reporting and considers the accuracy issue resolved. The methodological description can be found in the NIR (p.556).
W.13	5.D.1 Domestic wastewater – CH_4 (W.10, 2017) (W.25, 2016) (W.25, 2015) Accuracy	Follow the decision tree in the 2006 IPCC Guidelines regarding the value for B_o and MCF when estimating CH_4 emissions from domestic wastewater.	Addressing. The justification of use of the default value for B_o was agreed upon by the previous ERT. Concerning MCF, France explained during the review that no published literature containing information enabling it to develop a country-specific EF for septic systems has been found. Therefore, the Party did not update its MCF for septic systems but indicated its plans to do so.
W.14	5.D.2 Industrial wastewater – CH_4 (W.11, 2017) (W.24, 2016) (W.24, 2015) Transparency	Include in the NIR clear information on AD and CH_4 EFs and detailed information about the industries and amounts of wastewater discharged by those industries considered to calculate CH_4 emissions from industrial wastewater.	Not resolved. France did not include in the NIR clear information on AD and CH_4 EFs and detailed information about the industries discharging wastewater and the amounts of wastewater discharged by those industries considered in calculating CH_4 emissions from industrial wastewater.
KP-LULUCF activities			
KL.1	General (KP-LULUCF activities) (KL.2, 2017) (KL.3, 2016) (KL.3, 2015) KP reporting adherence	Improve the national system for the overseas territories by introducing additional institutional arrangements to ensure that at minimum information be collected on a continuous basis to be included in France's future annual submission on: (a) Forest area and forest area changes; (b) Forest areas subject to natural disturbances; (c) Forest biomass carbon stock gains; (d) Forest biomass carbon stock losses associated with harvesting and carbon stock losses associated with natural disturbances.	Not resolved. The NIR contains neither the required data nor information regarding institutional arrangements for ensuring the collection of information on overseas territories. During the review, France mentioned that a feasibility study on extending the NFI work in metropolitan France to the overseas territories is planned and that this information was included in the 2018 NIR (pp.500–501).
KL.2	General (KP-LULUCF activities) (KL.3, 2017) (KL.4, 2016) (KL.4, 2015) Accuracy	Use the data from the NFI plots collected in the areas subject to disturbance or land-use conversion for estimating biomass and DOM carbon stocks in disturbed/converted areas to enhance the accuracy of estimates of GHG emissions associated with disturbance of forest lands and their conversions to other land uses.	Addressing. France used data on the averaged stocks of deforested forest from the NFI instead of averaged stocks of forest, as was previously used, to estimate carbon stocks for living biomass. For burned areas, DOM was not taken into account. The Party has not addressed the previous recommendation regarding disturbances.

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
KL.3	General (KP-LULUCF activities) (KL.25, 2017) Comparability	Use the notation key "NA" in accordance with footnote 2 to CRF table NIR-2 for the activities that France did not elect to account for in the second commitment period of the Kyoto Protocol.	Not resolved. France reported "NE" instead of "NA" for activities not elected in the second commitment period of the Kyoto Protocol.
KL.4	General (KP-LULUCF activities) (KL.5, 2017) (KL.6, 2016) (KL.6, 2015) Accuracy	Allocate the appropriate portion of harvested wood to AR lands and remove it from FM, and revise carbon stock change estimates in AR and FM accordingly.	Not resolved. France did not allocate any harvested wood to AR and did not update the carbon stock change estimates or emissions and removals for AR and FM. During the review, the Party did not indicate its plans for addressing this recommendation.
KL.5	General (KP-LULUCF activities) (KL.7, 2017) (KL.8, 2016) (KL.8, 2015) Accuracy	Address the inconsistency between the information reported in the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol and the annual submission by including pests and droughts in the estimates of the background level and margin for FM and AR.	Not resolved. France did not take into account pests and droughts in the calculation of the background level and margin for FM and AR. During the review, the Party indicated that calculations had been made, but had not yet been included in the submission owing to the lack of reliability of the data.
KL.6	General (KP-LULUCF activities) (KL.10, 2017) (KL.9, 2016) (KL.9, 2015) Accuracy	Either report evidence that such an assumption is accurate (that in overseas territories the biomass carbon stock in forest land, including both lands under FM and AR, is at equilibrium) or estimate, at least at tier 1, biomass net carbon stock changes in FM and AR lands in overseas territories and report those estimates.	Not resolved. France did not include in the NIR further documentation or an estimation of tier 1 carbon stock changes and associated emissions and removals in AR and FM for the overseas territories. The Party currently assumes on the basis of expert judgment that increment rates are selected using harvest statistics from the overseas territories and continues to use a hypothesis of neutrality according to which gains are slightly greater than the losses due to harvest. During the review, France provided additional information about land monitoring in French Guiana and the extension of the NFI to the overseas territories, which will enable the Party to collect carbon stock values for use in future submissions.
KL.7	AR – FM – general (KL.11, 2017) (KL.10, 2016) (KL.10, 2015) Accuracy	Apply the stock difference method for estimating biomass and DOM net carbon stock changes to verify the estimate reported by applying the gain and loss method. The ERT notes that the stock difference method can be applied at the level of each single plot, and to estimates aggregated at the national level or directly applied at the national level; although if implemented at the national level the stock difference method would estimate the aggregated impact of AR, deforestation and FM.	Not resolved. France undertook no further work to apply the stock difference method for estimating biomass and DOM net carbon stock changes. During the review, the Party indicated that it aims to implement a stock difference method as soon as new data from the NFI are available.
KL.8	Article 3.3 activities (KL.4, 2017) (KL.5, 2016) (KL.5, 2015) Transparency	Report in the NIR the following quantitative information: (a) For both AR and deforestation, the time series (from 1990 to the last reported year) of area subject to the activity (i.e. extend back to the time period 1990–2007 the data series	Addressing. France progressed on some issues that are part of this overall recommendation, as follows: (a) Addressing. France reported the annual and cumulative areas of AR and deforestation (as well as FM) for 1990 to 2017 (NIR table

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		reported in NIR table 69) and of net annual SOC changes; (b) The time series (from 1990 to the last reported year) of annual harvesting, of biomass net annual increment, of GHG emissions from natural disturbances in lands subject to AR; (c) The time series (from 1990 to the last reported year) of biomass carbon stock loss from areas deforested every year.	174). The net annual SOC changes, however, were not provided; (b) Not resolved. No further information was provided in the NIR; (c) Not resolved. No further information was provided in the NIR.
KL.9	FM – CO_2, CH_4 and N_2O (KL.12, 2017) (KL.11, 2016) (KL.11, 2015) Accuracy	Calculate a technical correction of the FMRL to ensure consistency with the background level of emissions from natural disturbances in order to include in the FMRL the net GHG emissions calculated as the background level of natural disturbances. To do so, the technical correction of the FMRL has to add to the FMRL the background level value and subtract from the FMRL the emissions (already included) which originate from the type of natural disturbances that have been included in the calculation of the background level.	Resolved. France updated the FMRL taking into account the background level of all types of natural disturbances (NIR, p.598). However, information related to the calculation of the background level and the technical correction was not included in the NIR (see ID# KL.21 in table 5).
KL.10	FM – CO_2, CH_4 and N_2O (KL.13, 2017) (KL.12, 2016) (KL.12, 2015) Transparency	Report in the NIR quantitative information on the drivers that have determined the deviation of the actual estimates of GHG emissions and removals reported under FM from the projected GHG emissions and removals included in the FMRL correction value, including: (a) The time series (from 1990 to the latest reported year) of annual harvesting, of biomass gross annual increment, of natural mortality, of FM area and of GHG emissions from natural disturbances used for preparing estimates for FM during the commitment period; (b) The historical time series (1990–2012) of annual harvesting, of biomass gross annual increment, of natural mortality, of FM area, of GHG emissions from natural disturbances used for projecting the FMRL correction value; (c) The amount of annual harvesting, of biomass gross annual increment, of natural mortality, of FM area, of GHG emissions from natural disturbances included in the FMRL correction value.	Not resolved. The current technical correction to the FMRL was made by the Joint Research Centre of the European Commission using a process common to many member States of the European Union. France did not provide further information in the NIR on any of the elements recommended in the previous review report, but explained that the information is available in document FCCC/TAR/2011/FRA (the report of the technical assessment of the FMRL submission of France submitted in 2011).

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*	*ERT assessment and rationale*
KL.11	FM – CO_2 (KL.14, 2017) (KL.13, 2016) (KL.13, 2015) Accuracy	Use the same age-class structure as derived from the NFI for 2010 for calculating the FMRL correction value and ensure consistency in the factors applied in the FMRL and in the FM estimates to calculate the total biomass (above and below ground) of forest from the growing stock volume.	Not resolved. France updated the FMRL correction using an integrated model, which is explained in document FCCC/TAR/2011/FRA. However, the Party did not provide information in the NIR related to the age structures used for the FMRL and for FM (see ID# KL.10 above) that would enable the ERT to assess whether the same age-class structure and consistent factors had been applied in calculating the total biomass of forest. During the review, the Party indicated that it would assess whether additional information could be provided in the NIR, but considering the remaining time in the second commitment period of the Kyoto Protocol, it did not anticipate revising further the FMRL.
KL.12	FM – CO_2, CH_4 and N_2O (KL.15, 2017) (KL.14, 2016) (KL.14, 2015) Accuracy	Implement a technical correction to the FMRL in order to ensure consistency between the areas of forest applied for calculating the FMRL correction value and the areas reported under FM during the commitment period, including the forest area under FM in the overseas departments.	Resolved. France calculated a technical correction to the FMRL, applying the same areas of forest for the FMRL correction as the areas reported under FM during the second commitment period. The Party explained that the correction was applied using a model that ensures consistency among the forest areas in the annual GHG inventory, FM activities under Article 3, paragraph 4, of the Kyoto Protocol, and the FMRL (NIR, p.598). See ID# KL.20 in table 5.
KL.13	FM – CO_2 (KL. 17, 2017) (KL.15, 2016) (KL.15, 2015) Accuracy	Ensure consistency in the application of the methodology and in the data set used for estimating the HWP contribution in the FMRL and in the actual estimates for FM, by using a single methodology fully consistent with the guidance contained in the Kyoto Protocol Supplement.	Resolved. France used the IPCC default methodology in the Kyoto Protocol Supplement for estimating emissions and removals from HWP instead of the gamma equation, as was previously used, in both the FMRL calculation and the estimates reported for FM. The ERT noted that while the Party applied a single methodology and ensured consistency, the presentation of the relevant information in the NIR could be enhanced (see ID# KL.20 in table 5).
KL.14	FM – CO_2, CH_4 and N_2O (KL.18, 2017) (KL.16, 2016) (KL.16, 2015) Transparency	Harmonize the application of the unmanaged forest land definition by accounting under FM all the forest lands in the metropolitan territory that are not reported under AR or deforestation, regardless of their accessibility.	Not resolved. France did not document in the submission which areas of forests have been included under FM. During the review, the Party indicated that in the next submission it would report all forests as managed, including those in the overseas territories.
KL.15	FM – general (KL.19, 2017) (KL.17, 2016) (KL.17, 2015) Transparency	Report 153,455.612 kt CO_2 eq as the FM cap in the CRF table accounting.	Not resolved. France reported the FM cap as 153,459.273 kt CO_2 eq. During the review, the Party noted that it updates the cap annually. The ERT noted that, according to paragraph 12 of decision 6/CMP.9, the FM cap is established as part of the initial report to facilitate the calculation of the assigned amount and shall remain fixed for the second commitment period.
KL.16	HWP – CO_2 (KL.21, 2017) (KL.19, 2016) (KL.19, 2015) Transparency	Report in CRF table 4(KP-I)C and in the NIR, as follows: (a) Background data (i.e. the time series of HWP domestically	Addressing. France progressed on some issues that are part of this overall recommendation, as follows:

ID#	Issue and/or problem classification[a, b]	Recommendation made in previous review report	ERT assessment and rationale
		produced from domestic wood) for each HWP category; (b) Information on how HWP domestically produced from domestic wood have been singled out from the total HWP domestically produced; (c) Information on how the HWP contribution of exported HWP, domestically produced with domestic wood, have been estimated; (d) Information on how HWP domestically produced with domestic wood harvested in non-forest land, if any, have been estimated and whether they have been excluded from the HWP contribution; (e) Information that demonstrates the consistency between the harvesting rate reported for estimating biomass net carbon stock change in land under FM and AR and the HWP domestic production.	(a) Not resolved. France provided volumes of HWP domestically produced by category, but the data on domestic wood from which these HWP are derived were not provided in NIR table 157. In CRF table 4(KP-I)C, "NO" was reported under harvest and needs to be updated with the values for domestic harvest by category; (b) and (c) Addressing. France improved the transparency of the NIR and provided additional information on HWP calculations and assumptions in chapter 6.10.2. For (b), although the NIR indicates that incoming flows can distinguish wood products from wood harvested in France and wood products from imported wood (p.534), there is no description of how this is done. For (c), the NIR indicates that statistics on exported wood are available, but a distinction is not made for exported wood that is domestically produced (p.534); (d) Resolved. France provided additional information related to HWP excluded from deforested land during land-use change and on other land not under FM (NIR, pp.535 and 597) (see ID# KL.22 in table 5); (e) Not resolved. France did not provide information in the NIR that demonstrates consistency between the HWP reported under AR and FM and the domestic production of HWP.
KL.17	HWP – CO_2 (KL.22, 2017) (KL.20, 2016) (KL.20, 2015) Convention reporting adherence	Report verification information for the estimates of the HWP contribution. The ERT notes, in this regard, that verification information may be an alternative estimate prepared applying the default methodology contained in the Kyoto Protocol Supplement.	Not resolved. France did not provide verification information for the estimates of the HWP contribution, or estimates prepared using an alternative methodology, in the NIR.
KL.18	Biomass burning – CO_2, CH_4 and N_2O (KL. 23, 2017) (KL.2, 2016) (KL.2, 2015) (137, 2014) Transparency	For wildfires, provide the reference for each of the CO_2, CH_4 and N_2O EFs used and the underlying assumptions, if applicable.	Addressing. France provided the EFs in the NIR (p.487); however, the underlying assumptions for each of the EFs are not fully documented.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) in which the issue and/or problem was raised. Issues are identified in accordance with paras. 80–83 of the UNFCCC review guidelines and classified as per para. 81 of the same guidelines. Problems are identified and classified as problems of transparency, accuracy, consistency, completeness or comparability in accordance with para. 69 of the Article 8 review guidelines in conjunction with decision 4/CMP.11.

[b] The report on the review of the 2018 annual submission of France was not available at the time of the 2019 review. Therefore, the previous recommendations reflected in table 3 are taken from the 2017 annual review report. For the same reason, 2018 is excluded from the list of review years in which the issue could have been identified.

IV. Issues identified in three successive reviews and not addressed by the Party

9. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues included in table 4 have been identified in three or more successive reviews, including the review of the 2019 annual submission of France, and have not been addressed by the Party.

Table 4
Issues and/or problems identified in three successive reviews and not addressed by France

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
General		
G.3	Establish a previous period surplus reserve as soon as technically possible, which the ERT assumes will be prior to the 2017 annual submission	3 (2015–2019)
G.4	Clearly explain the methodologies and the sources of data used for each part of the French metropolitan and overseas territories	4 (2014–2019)
G.6	Transparently report the information and assumptions used when defining the uncertainty of AD and EFs in line with the 2006 IPCC Guidelines (vol. 1, chap. 3.5)	3 (2015–2019)
Energy		
E.2	For fuels used in the activities which are key in the French GHG inventory, determine country-specific values for the CO_2 EFs (e.g. for gasoline and diesel oil used in road transportation)	3 (2015–2019)
E.5	Explain in the NIR the discrepancies between the sectoral and the reference approaches for international aviation (jet kerosene) and international navigation	3 (2015–2019)
E.6	(a) Subtract the non-energy use of the fuels in the reference approach to have a consistent comparison with the sectoral approach; (b) Properly identify and allocate the emissions from the industrial gases by origin from the primary fuels, in line with the 2006 IPCC Guidelines and avoiding double accounting, and provide relevant explanations in the NIR	3 (2015–2019)
IPPU		
I.2	If different data sources and methodologies/tiers are used for different periods (e.g. production of lime, ammonia, nitric acid, and iron and steel), provide explanations for such inter-annual changes, where applicable, including information on how the consistency of the time series is ensured when different data sources or methodologies are used to estimate emissions for different periods of time	3 (2015–2019)
Agriculture		
A.2	Provide in the NIR disaggregated values on a livestock subcategory level for animal body weight and any other important parameters used (e.g. net energy intake, organic matter intake, feed digestibility) and explain the approach used to calculate weighted average values	3 (2015–2019)
A.5	Report the corresponding calculation parameters (methane conversion factors, animal waste management system distribution) under MMS digesters in CRF table 3.B(a)s2	3 (2015–2019)

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
A.12	Improve the QC activities and correct the discrepancies in the nitrogen input to soils between the NIR and the CRF tables (differences for the nitrogen input to soils from synthetic fertilizers and animal manure; correct error for nitrogen deposited in the NIR)	4 (2014–2019)
LULUCF		
L.2	Include all territories so as to cover the entire geographical area in the annual submission and harmonize the different sources of data to ensure consistency, completeness and accuracy of reporting	5 (2013–2019)
L.3	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	5 (2013–2019)
L.4	Report in the NIR complete information on data sources, assumptions and methodologies used. In particular, ensure that the following information is reported: (a) The land use and land-use change matrix (from 1990 to the latest reported year) using the relevant categories from TERUTI; (b) The time series 1971–1989 of the land use and land-use change matrix (equivalent to CRF table 4.1); (e) Information on how the monitoring system is able to identify land-use changes occurring in the unmanaged forest land from those occurring in the managed forest land; (f) Information on how the monitoring system is able to identify disturbances occurring in the unmanaged forest land from those occurring in the managed forest land and whether the time series of data used for calculating the background level of natural disturbances, and its margin, includes GHG emissions from natural disturbances that occurred in unmanaged forest land; (g) The time series from 1990 to the latest reported year of the area subject to each of the KP-LULUCF activities; (h) The time series from 1990 to the latest reported year of the biomass average gross annual increment (t C/ha) in forest land remaining forest land and in land converted to forest land together with the area across which the value has been calculated, disaggregated at the level of regions and forest types applied for calculating the national total biomass gross annual increment; (i) The time series from 1990 to the latest reported year of the mortality (t C/ha) in forest land remaining forest land and in land converted to forest land, disaggregated at the level of regions and forest types applied for calculating the national total biomass gross annual increment; (k) For each natural disturbance type, the time series from 1990 to the latest reported year of areas of forest land subject to natural disturbances disaggregated at the level of regions and forest types applied for calculating the national total biomass gross annual increment; (l) The time series from 1990 to the latest reported year of the total harvested wood subdivided by land of origin (i.e. metropolitan France and overseas territories), and land use of origin (i.e. forest land, possibly subdivided between FM and AR lands, cropland and grassland);	3 (2015–2019)

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
	(q) Information on EFs to clarify the timing of collection, the methodology applied for data collection, the method (including any assumption and equation) applied for the elaboration of EFs from rough data	
L.6	Report in the NIR information on the uncertainty value and associated probability density function for all parameters and data used to prepare the GHG estimates. This could be achieved by, for example, including in the NIR, for each land use and land-use change category, a table that includes, for all parameters and data used for preparing the GHG estimate, the average value, the unit, the assigned confidence interval, together with information on how the confidence interval has been calculated, and information on the type of probability density function applied to the parameter/data uncertainty	3 (2015–2019)
L.8	Apply the IPCC default SOC values and SOC change factors for those territories (e.g. overseas territories), for which country-specific factors have not been calculated	3 (2015–2019)
L.14	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	4 (2014–2019)
L.15	Assess and report on the potential impact of using NFI data on carbon stocks and carbon stock changes, calculated over the NFI area, together with the TERUTI areas data set	5 (2013–2019)
L.16	Harmonize the application of the unmanaged forest definition across the entire national territory and, in doing so, ensure consistency between the reporting of managed forest land and of FM and complete coverage of forest lands in the metropolitan territory, regardless of their accessibility	3 (2015–2019)
L.18	Apply at least a tier 1 method from the IPCC good practice guidance for LULUCF to estimate the net CO_2 emissions and removals from land converted to perennial crops	5 (2013–2019)
L.19	Provide estimates of biomass losses from conversion of perennial crops to other land uses (including cropland converted to wetlands, settlements and other land)	4 (2014–2019)
L.21	Report in the NIR complete information on the calculation/selection of each biomass density value	3 (2015–2019)
L.22	Applying at least the tier 1 IPCC method, report estimates of biomass and soil carbon stock changes, and associated CO_2 and N_2O emissions, in: (a) Grassland remaining grassland, reporting emissions and removals associated with changes in grassland subcategories; (b) Land converted to grassland, reporting also emissions and removals from conversions of land uses other than forest to grassland subcategories	3 (2015–2019)
L.23	Either report information to demonstrate that the methodology used to estimate carbon stock changes in land converted from and to wetlands produces more accurate and/or precise estimates than the IPCC methodology (2006 IPCC Guidelines, vol. 4, equation 2.26) or apply the IPCC methodology for estimating GHG emissions and removals from drained (wetlands converted to other land uses) and rewetted (other land uses converted to wetlands) organic soils	3 (2015–2019)

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
L.25	Estimate SOC losses and associated CO_2 and N_2O emissions originated from conversions of cropland, grassland, wetlands and settlements to other land either applying the IPCC default assumption (i.e. all SOC lost in the conversion), or applying a country-specific SOC factor for other land	3 (2015–2019)
L.27	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, including for overseas countries and territories	4 (2014–2019)
L.28	Provide information on the progress of the collaboration between the National Institute of Geographic and Forest Information and Citepa to refine the calculation of the types of burned forests using data from the PROMETHEE database	3 (2015–2019)
Waste		
W.1	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	5 (2013–2019)
W.3	Provide more information on the waste composition allocation to the degradation categories used for the estimation for all years of the time series by adding 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	5 (2013–2019)
W.4	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	4 (2014–2019)
W.6	Report the correct value used for DOC_f in the CRF tables	3 (2015–2019)
W.13	Follow the decision tree in the 2006 IPCC Guidelines regarding the value for B_o and MCF when estimating CH_4 emissions from domestic wastewater	3 (2015–2019)
W.14	Include in the NIR clear information on AD and CH_4 EFs and detailed information about the industries and amounts of wastewater discharged by those industries considered to calculate CH_4 emissions from industrial wastewater	3 (2015–2019)
KP-LULUCF activities		
KL.1	Improve the national system for the overseas territories by introducing additional institutional arrangements to ensure that at minimum information be collected on a continuous basis to be included in France's future annual submission on: (a) Forest area and forest area changes; (b) Forest areas subject to natural disturbances; (c) Forest biomass carbon stock gains; (d) Forest biomass carbon stock losses associated with harvesting and carbon stock losses associated with natural disturbances	3 (2015–2019)
KL.2	Use the data from the NFI plots collected in the areas subject to disturbance or land-use conversion for estimating biomass and DOM carbon stocks in disturbed/converted areas to enhance the accuracy of estimates of GHG emissions	3 (2015–2019)

ID#	Previous recommendation for the issue identified	Number of successive reviews issue not addressed[a]
	associated with disturbance of forest lands and their conversions to other land uses	
KL.4	Allocate the appropriate portion of harvested wood to AR lands and remove it from FM, and revise carbon stock change estimates in AR and FM accordingly	3 (2015–2019)
KL.5	Address the inconsistency between the information reported in the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol and the annual submission by including pests and droughts in the estimates of the background level and margin for FM and AR	3 (2015–2019)
KL.6	Either report evidence that such an assumption is accurate (that in overseas territories the biomass carbon stock in forest land, including both lands under FM and AR, is at equilibrium) or estimate, at least at tier 1, biomass net carbon stock changes in FM and AR lands in overseas territories, and report those estimates	3 (2015–2019)
KL.7	Apply the stock difference method for estimating biomass and DOM net carbon stock changes to verify the estimate reported by applying the gain and loss method. The ERT notes that the stock difference method can be applied at the level of each single plot, and to estimates aggregated at the national level or directly applied at the national level; although if implemented at the national level the stock difference method would estimate the aggregated impact of AR, deforestation and FM	3 (2015–2019)
KL.8	Report in the NIR the following quantitative information: (a) For both AR and deforestation, the time series (from 1990 to the last reported year) of area subject to the activity (i.e. extend back to the time period 1990–2007 the data series reported in NIR table 69) and of net annual SOC changes; (b) The time series (from 1990 to the last reported year) of annual harvesting, of biomass net annual increment, of GHG emissions from natural disturbances in lands subject to AR; (c) The time series (from 1990 to the last reported year) of biomass carbon stock loss from areas deforested every year	3 (2015–2019)
KL.10	Report in the NIR quantitative information on the drivers that have determined the deviation of the actual estimates of GHG emissions and removals reported under FM from the projected GHG emissions and removals included in the FMRL correction value, including: (a) The time series (from 1990 to the latest reported year) of annual harvesting, of biomass gross annual increment, of natural mortality, of FM area and of GHG emissions from natural disturbances used for preparing estimates for FM during the commitment period; (b) The historical time series (1990–2012) of annual harvesting, of biomass gross annual increment, of natural mortality, of FM area, of GHG emissions from natural disturbances used for projecting the FMRL correction value; (c) The amount of annual harvesting, of biomass gross annual increment, of natural mortality, of FM area, of GHG emissions from natural disturbances included in the FMRL correction value	3 (2015–2019)
KL.11	Use the same age-class structure as derived from the NFI for 2010 for calculating the FMRL correction value and ensure	3 (2015–2019)

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
	consistency in the factors applied in the FMRL and in the FM estimates to calculate the total biomass (above and below ground) of forest from the growing stock volume	
KL.14	Harmonize the application of the unmanaged forest land definition by accounting under FM all the forest lands in the metropolitan territory that are not reported under AR or deforestation, regardless of their accessibility	3 (2015–2019)
KL.15	Report 153 455.612 kt CO_2 eq as the FM cap in the CRF table accounting	3 (2015–2019)
KL.16	Report in CRF table 4(KP-I)C and in the NIR, as follows: (a) Background data (i.e. the time series of HWP domestically produced from domestic wood) for each HWP category; (b) Information on how HWP domestically produced from domestic wood have been singled out from the total HWP domestically produced; (c) Information on how the HWP contribution of exported HWP, domestically produced with domestic wood, have been estimated; (e) Information that demonstrates the consistency between the harvesting rate reported for estimating biomass net carbon stock change in land under FM and AR and the HWP domestic production	3 (2015–2019)
KL.17	Report verification information for the estimates of the HWP contribution. The ERT notes, in this regard, that verification information may be an alternative estimate prepared applying the default methodology contained in the Kyoto Protocol Supplement	3 (2015–2019)
KL.18	For wildfires, provide the reference for each of the CO_2, CH_4 and N_2O EFs used and the underlying assumptions, if applicable	4 (2014–2019)

[a] The report on the review of the 2018 annual submission of France has not yet been published. Therefore, 2018 was not included when counting the number of successive years in table 4. As the reviews of the Party's 2015 and 2016 annual submissions were conducted together, they are not considered successive and 2015/2016 is considered as one year.

V. Additional findings made during the individual review of the 2019 annual submission

10. Table 5 contains findings made by the ERT during the individual review of the 2019 annual submission of France that are additional to those identified in table 3.

Table 5
Additional findings made during the individual review of the 2019 annual submission of France

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
General			
G.8	CPR	The assigned amount, as reported by the Party and agreed by the ERT in document FCCC/IRR/2016/FRA (the report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of France) (p.9), is 3,014,714,832 t CO_2 eq. From this assigned amount, the CPR, as calculated by the Party and agreed by the ERT, reported in that same document (p.9), is 2,713,243,349 t CO_2 eq. The CPR is 90 per cent of the assigned amount. The ERT noted that a CPR calculated using 90 per cent of the assigned amount is not consistent with the value presented in the NIR (p.604), which is 2,653,819,345 t CO_2 eq. According to decision 13/CMP.1, annex, paragraph 10, the assigned amount shall remain fixed for the second commitment period of the Kyoto Protocol; the Party may not change the assigned amount and the CPR is calculated on the basis of the fixed assigned amount. The ERT recommends that France report a CPR that is calculated on the basis of either 90 per cent of the assigned amount, as published in document FCCC/IRR/2016/FRA, or 100 per cent of eight times the Party's most recently reviewed inventory, whichever figure is lower.	Yes. KP reporting adherence
G.9	EFs	France refers to the Citepa website for the OMINEA database (https://www.citepa.org/fr/ominea/) in approximately 30 places in the NIR. There are two files at this URL: a spreadsheet file with EFs and a PDF file with details of the organization of and methods used in the national inventories of atmospheric emissions in France. The PDF file also contains some EFs, with references to their source. Both files contain information about GHGs and air pollutants. The spreadsheet contains a time series of EFs, which increases the transparency of reporting, but it does not include references for the EFs. In addition, the units used for the EFs and AD in the spreadsheet are not always consistent with those in the 2006 IPCC Guidelines, and therefore make review and assessment under the UNFCCC process difficult. Finally, as these EFs are predominantly not included in the NIR, but are in the two separate files, the ERT considers that appropriate mechanisms need to be established to ensure (1) easy access to the methodological data and EFs for past and future years; and (2) that these data are archived in association with the NIR for a given year (i.e. in such a way that the files are accessible or downloadable for each year). During the review, the Party indicated that with respect to archiving of the OMINEA database, the practices are consistent with those done for the NIR. The Party also hopes to be able to make the OMINEA database available as an annex to the annual submission under the Convention, resulting in a more cohesive linkage between the information in both reports. The ERT recommends that France (1) add references to the OMINEA database spreadsheet for those EFs used in the GHG inventory – a cross reference to the Citepa PDF file would be sufficient where the PDF has a clear reference to the source of the EF; (2) either apply units commonly used for reporting under the UNFCCC, consistent with the 2006 IPCC Guidelines (e.g. kg/t, t/t), in the spreadsheet, or include any conversion factors applied; and (3) ensure that its archiving system includes the two above-mentioned Citepa website files associated with each annual NIR.	Yes. Transparency
G.10	Key category analysis	CRF table NIR-3 does not include a qualitative assessment of the KP-LULUCF key categories. During the review, France noted that it believes CRF table NIR-3 is complete, and indicated that related information on the analysis was provided in the NIR (chap. 11.6). The ERT noted, however, that footnote 3 to CRF table NIR-3 indicates that	Not an issue/problem

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
		column E of the table should include a qualitative assessment in accordance with the 2006 IPCC Guidelines (vol. 1, chap. 4.3.3) or any other criteria. The ERT encourages France to provide in CRF table NIR-3 a qualitative assessment for the key category analysis for KP-LULUCF activities using the guidance in the 2006 IPCC Guidelines (vol. 1, chap. 4.3.3).	
G.11	Recalculations	France refers in several places in the NIR to an additional file related to recalculations, which the ERT noted is neither provided in the references to the French inventory nor included in the submission, and for which there is no weblink from where it can be downloaded. During the review, the Party mentioned that this file was renamed during the 2019 submission and can be downloaded from the UNFCCC submission website. The ERT commends France for the additional file including all recalculations made for a given submission year. The ERT recommends that France correct the name of the recalculations file referenced in the NIR to match the name of the file submitted and available for download.	Yes. Transparency
Energy			
E.15	Fuel combustion – reference approach – liquid, solid, gaseous and other fossil fuels – CO_2	Differences between the reference and sectoral approaches of more than 2 per cent were observed for some years (e.g. 2011–2015 and 2017, for which the differences ranged from 2.0 to 4.2 per cent (NIR table 35)). The ERT noted that France did not provide the specific reasons for the discrepancies for liquid, solid, gaseous and other fossil fuels, but indicated that the differences would be analysed (pp.120–121). During the review, the Party indicated that it had modified the calculation of solid fuels by the reference approach for the 2019 annual submission, but the ERT noted that discrepancies for energy consumption remain (36.27 per cent in 2017). France acknowledged that double counting has probably occurred in the reference approach and indicated that it is working on implementing a new sectoral methodology for the iron and steel industry. The Party expects to resolve the discrepancies between the reference and sectoral approaches in the next submission. The ERT recommends that France report in the NIR the reasons for any differences greater than 2 per cent between the reference and sectoral approaches for liquid, solid, gaseous and other fossil fuels, focusing on 2011 onward.	Yes. Transparency
E.16	Feedstocks, reductants and other non-energy use of fuels – solid fuels – CO_2	In the 2017 annual submission, France considered all fuel for non-energy use from solid fuels as coking coal (consumption of 5,962.00 TJ and emissions of 564.01 kt CO_2 in 2015). In the 2019 annual submission, France considered all fuel for non-energy use from solid fuels as anthracite (consumption of 30,104.33 TJ and emissions of 2,141.80 kt CO_2 in 2015). During the review, the Party explained that it has changed the reporting in the 2019 annual submission and included both coking coal and coke oven/gas coke under anthracite in the CRF tables. The Party indicated that it knows the type and quantity of solid fuel fed into the iron and steel plants, but cannot identify how much of each fuel type is used as energy or non-energy in the production process. France stated that in the 2019 annual submission, it reported arbitrarily the total quantity of solid fuel for non-energy use as anthracite, but it recognizes that this is not a good approach, because the consumption of coking coal is higher than the consumption of anthracite. The ERT considers that to enhance the transparency and comparability of reporting, the fuels used for non-energy use should be reported at the most disaggregated level possible. The ERT recommends that France disaggregate the consumption of the non-energy use of solid fuels (coking coal and coke oven coke) used for non-energy use and correctly allocate the consumption of the different fuel types in CRF table 1.A(d).	Yes. Comparability

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
E.17	Comparison with international data	In 2017, the total apparent energy consumption reported in CRF table 1.A(c) was 3 per cent greater than that reported to IEA, mainly owing to discrepancies in the data of imports of other oil. Imports of anthracite reported in CRF table 1.A(b) were four times greater than what was reported to IEA. The ERT noted that discrepancies between the data submitted under the Convention and to IEA may have arisen owing to different geographical definitions being used in the compilation of the respective data sets, and that in the 2019 submission, the coverage of data reported to IEA has changed. The IEA data now include Monaco and exclude the collectivities French Polynesia, New Caledonia, Saint Barthelemy, Saint-Martin, Saint Pierre and Miquelon, and Wallis and Futuna. Data for the overseas departments French Guiana, Guadeloupe, Martinique, Mayotte and Reunion are included for 2011–2017 and excluded for earlier years. Conversely, CRF data (under the Convention) exclude Monaco but include all the overseas territories. During the review, France indicated that it needs to investigate both data sets to understand the remaining discrepancies between them. The ERT noted that the analysis of discrepancies between the data submitted to IEA and the data reported in the CRF tables could be enhanced through data-sharing and discussion of energy data and methodologies among the experts working on energy statistics and the experts compiling the GHG inventories at the country level. The ERT encourages France to report in the NIR the discrepancies observed owing to differences in geographical coverage between energy consumption data submitted under the Convention and to IEA.	Not an issue/problem
E.18	1.A Fuel combustion – sectoral approach	In CRF tables 1.A(a)s1, 1.A(a)s2, 1.A(a)s3 and 1.A(a)s4, the columns "GCV" (gross calorific value) and "NCV" (net calorific value) are blank. During the review, France indicated that these columns should be filled with "NCV". The ERT recommends that France report in CRF tables 1.A(a)s1, 1.A(a)s2, 1.A(a)s3 and 1.A(a)s4 the calorific value used, filling in the relevant column with "NCV" for the entire time series.	Yes. Transparency
E.19	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2	The values of the CO_2 EF for some fuel types in NIR table 38 do not correspond with the values of the same CO_2 EF in other places in the NIR and in the OMINEA database. For example, for diesel oil, the CO_2 EF in NIR table 38 is 75.0 kg CO_2/GJ, while in the second table on page 130 of the NIR it is 75.59 kg/GJ. In addition, the reference numbers 905 and 716 for the CO_2 EF for diesel oil provided in NIR table 38 are missing in the reference list of the NIR. Another example is the CO_2 EF for domestic heating oil, which is 75.0 kg CO_2/GJ in NIR table 38, while the corresponding CO_2 EF in the OMINEA database varies from 37.7 to 75.86 kg CO_2/GJ, depending on the category. During the review, France confirmed that some of the CO_2 EFs and references need to be updated. The ERT recommends that France update NIR table 38 with the EFs for diesel oil and domestic heating oil used in the emission calculations and include the relevant references from NIR table 38 in the reference list of the NIR. In addition, the ERT encourages France to review the OMINEA database to ensure that the information it contains corresponds with that in the NIR (after the update).	Yes. Transparency
E.20	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2	A country-specific CO_2 EF for fossil diesel was estimated for the first time in 2017 and included in the 2019 annual submission. The EF was based on 25 winter fuel samples and 25 summer fuel samples sold at the pump (NIR, p.130). The samples were analysed for their contents of hydrogen, carbon and oxygen. As the country-specific EF for diesel (75.59 kg CO_2/GJ) is higher than the default EF for diesel in the 2006 IPCC Guidelines (74.1 kg CO_2/GJ), during the review, the ERT asked France to provide the criteria for selecting the samples and asked whether they were selected randomly or with a specific approach to ensure they were representative of the variability of fuel quality in the country. The Party replied that the 25 samples were part of the 100 samples for the fuel quality	Yes. Transparency

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		monitoring system, which is mandatory for all member States of the European Union. The Ministry of Ecological Transition and Solidarity is in charge of France's fuel quality monitoring system and the system's samples are chosen to be representative of fuels sold in the country. The carbon and hydrogen contents were measured using the ASTM D5291 method and oxygen was measured using the ASTM D5622mod method for diesel oil. The samples were taken at service stations in two regions and are representative of the quality of fuels sold in metropolitan France (they were cross-checked with the remainder of the 100 samples). The ERT recommends that France provide in the NIR a detailed explanation regarding the criteria for selecting the fuel samples used for estimating the CO_2 EF for fossil diesel.	
E.21	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2	The ERT noted that no information is included in the NIR on the CO_2 EFs for biofuels. Therefore, during the review, the ERT asked France to provide the source of the CO_2 EFs and the methodology used for estimating them. The Party explained that the CO_2 EFs for biofuels are based on a report on energy balances and GHG emissions from biofuel production chains (PCW, 2002), provided the numbers of the pages on which the ERT could find the data used to estimate the CO_2 EFs for biofuels, and described the method used to calculate the CO_2 EFs for biogasoline (ethanol), biodiesel (fatty acid methyl ester) and synthetic biodiesel. The ERT recommends that France describe in the NIR how the CO_2 EFs for biogasoline (ethanol), biodiesel (fatty acid methyl ester) and synthetic biodiesel are estimated, and provide information on their source (the name of the report and the page number on which the data used can be found).	Yes. Transparency
E.22	1.A.3 Transport – liquid fuels – CO_2	Table 37 of the NIR (p.125) includes the net calorific value for diesel used in the inventory (42 MJ/kg). The second table on page 130 of the NIR contains the CO_2 EF for diesel expressed as 75.59 g CO_2/GJ (compared with the IPCC default of 74.07 kg CO_2/GJ) and 3.126 g CO_2/g fuel. The ERT noted that if the net calorific value for diesel oil provided in table 37 is used to estimate the CO_2 EF, that EF is 3.175 g CO_2/g diesel oil and not 3.126 g CO_2/g diesel, which is the value in the second table on page 130 of the NIR. During the review, France confirmed that the country-specific CO_2 EF for diesel oil is indeed 3.175 g CO_2/g diesel. The ERT noted that the error only affects the NIR; the emission calculations are accurate. The ERT recommends that France update the second table on page 130 of the NIR with the correct value for the CO_2 EF for diesel oil, expressed as g CO_2/g fuel, using the net calorific value in table 37 of the NIR. The ERT also recommends that the Party correct the unit from g/GJ to kg/GJ in the same table.	Yes. Transparency
E.23	1.A.3.c Railways – liquid fuels – CO_2, CH_4 and N_2O	The ERT determined that some steam trains operate in France, and that the AD for and GHG emissions from them are reported in CRF table 1.A.4.a (commercial/institutional) rather than in CRF category 1.A.3.c (railways) (see ID# E.9 in table 3). The ERT recommends that France explain in the NIR (chap. 3.2.7.1.3, "Rail") that there are a small number of steam trains consuming coal operating in France, but that the associated AD and GHG emissions are included under category 1.A.4.a. The ERT also recommends that the Party explain in the NIR the rationale for allocating some coal consumed in locomotives in category 1.A.4.a.	Yes. Transparency
E.24	1.A.3.c Railways – liquid fuels – CO_2	In 2017, France developed a country-specific CO_2 EF for diesel oil. During the review of the 2019 annual submission, the ERT asked the Party which categories the new EF was used for, and the Party clarified that it was used for every category in which diesel oil is consumed. These categories are 1.A.2 (manufacturing industries and	Yes. Transparency

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		construction), 1.A.2.f (non-metallic minerals), 1.A.3.b (road transportation), 1.A.3.c (railways), 1.A.3.d (domestic navigation), 1.A.4.a (commercial/institutional), 1.A.4.b (residential), 1.A.4.c.ii (off-road vehicles and other machinery) and 1.D.2.b (international navigation). The ERT noted that, in the NIR (pp.192 and 196), France distinguishes between diesel and non-road diesel used by railways, stating that "regular" diesel was used between 2006 and 2010 and non-road diesel was used between 2011 and 2017. Before 2006 (1990–2005), domestic heating oil was used by railways. The ERT also noted that the same country-specific CO_2 EF for diesel (75.59 kg/GJ) was applied for both diesel and non-road diesel used by railways between 2007 and 2017, but a different CO_2 EF (75.39 kg/GJ) was applied for 2006, despite the use of diesel in that year. The ERT recommends that France clarify in the NIR the difference between diesel and non-road diesel used by railways, recognizing that the Party applies the same country-specific CO_2 EF for both fuels. The ERT also recommends that France justify why it has applied a different CO_2 EF for diesel in 2006 (75.39 kg/GJ) from the country-specific CO_2 EF for diesel used in 2007–2017 (75.59 kg/GJ), given that the Party has stated that diesel and non-road diesel is used for all these years (2006–2017), and if the CO_2 EF for diesel for 2006 cannot be justified, apply the same value as for 2007–2017 (75.39 kg/GJ) or another appropriately justified country-specific value.	
E.25	1.A.3.e.ii Other (other transportation) – liquid fuels – CO_2, CH_4 and N_2O	The AD for and the GHG emissions from ground transport activities in airports and harbours were reported under category 1.A.4.a (commercial/institutional) (see ID# E.10 in table 3). The ERT noted that France used the notation key "NO" in CRF table 1.A(a)s3 for category 1.A.3.e.ii other (other transportation) for both the AD and emissions of CO_2, CH_4 and N_2O. During the review, the Party explained that it would change the notation key from "NO" to "IE" for liquid fuels under category 1.A.3.e.ii in CRF table 1.A(a)s3 and create a chapter for category 1.A.3.e.ii in the NIR of the next submission. The ERT recommends that France include in the NIR a new chapter for category 1.A.3.e.ii, in which it would clarify under which category the fuel consumption by and the CO_2, CH_4 and N_2O emissions from ground transport activities in airports and harbours (off-road vehicles) are included and explain the rationale for not reporting these data under category 1.A.3.e.ii.	Yes. Transparency
E.26	1.A.3.e.ii Other (other transportation) – all fuels – CO_2, CH_4 and N_2O	In the NIR (p.185), France states that ground transport activities in airports are reported under category 1.A.2.g (other (manufacturing industries and construction)). However, during the review, the Party confirmed the information in the NIR (p.227) indicating that the AD and emissions of CO_2, N_2O and CH_4 from ground transport activities in airports are reported under category 1.A.4.a (commercial/institutional) (see ID# E.10 in table 3). The ERT recommends that France change the information in the NIR (p.185) regarding which category ground transport activities in airports are reported under from category 1.A.2.g (other (manufacturing industries and construction)) to category 1.A.4.a (commercial/institutional).	Yes. Transparency
E.27	1.A.4.b Residential – all fuels – CO_2	For this category, France indicated in the NIR (p.230) that the CO_2 emissions were determined using default EFs from the 2006 IPCC Guidelines. During the review, the Party explained that country-specific EFs for diesel and gasoline were used for all categories in which these fuel types are consumed, including category 1.A.4.b. The Party clarified that default EFs from the 2006 IPCC Guidelines were applied only to stationary installations for the following fuel types: coking coal and other bituminous coal, other petroleum products and liquefied petroleum gas. For the other fuels used in category 1.A.4.b (heavy fuel oil, gas/diesel oil and natural gas), France used country-	Yes. Transparency

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
		specific values based on data in reports specific to the country in the literature or on carbon content measurements, as was the case for diesel and gasoline. The ERT recommends that France provide in the NIR the values for and references to the sources of the EFs for each fuel type consumed in category 1.A.4.b (residential), and specify if they are default EFs from the 2006 IPCC Guidelines or country-specific EFs.	
E.28	1.B.2.a Oil – gaseous fuels – CO_2	France reported in CRF table 1.B.2 "NE" for CO_2 captured from category 1.B.2.a.1 (oil exploration) for the entire time series. During the review, the Party clarified that CO_2 captured should be reported as "NO". The ERT recommends that France correct in CRF table 1.B.2 the notation key from "NE" to "NO" for CO_2 captured from oil exploration (1.B.2.a.1) for the entire time series.	Yes. Comparability
E.29	1.C.2 Injection and storage – gaseous fuels – CO_2	France states in the NIR (p.251) that no CO_2 emissions were measured for injection and storage, despite an experimental plant being in operation with an injection period (2010–2013) and a post-injection observation period (2013–2016) (see ID# E.14 in table 3). The ERT noted that the CO_2 emissions from injection and from storage were both reported as "IE" in CRF table 1.C for the entire time series, and the information provided in CRF table 9 was that possible fugitive emissions due to injections were included in the global fugitive emissions reported under category 1.B.2.b natural gas. During the review, the Party confirmed the inconsistency between the explanation in the NIR and the notation key "IE" used in CRF table 1.C, and explained that emissions from storage are in fact not occurring. The ERT finds it reasonable to report fugitive CO_2 emissions from injection under category 1.B.2.b (natural gas). However, the ERT noted that for the years in which no CO_2 injection occurs, the notation key "NO" would be more appropriate. Regarding storage, in accordance with the 2006 IPCC Guidelines (vol. 2, chap. 5.7) a more detailed monitoring programme should be applied. The ERT noted that France undertook a measurement project for the experimental plant and determined its emissions to be below the detection threshold. The ERT believes that in this case, as the activity (storage) is occurring, but no emissions are detected, the proper notation key is "NA". The ERT recommends that France report the notation key "IE" for CO_2 emissions from injection for the years in which injection was occurring but emissions were reported under category 1.A.2.b (natural gas) (i.e. from 2010 to 2013) and the notation key "NO" for the years in which injection was not occurring. The ERT also recommends that the Party report "NA" for CO_2 emissions from storage for the years in which injection occurred but CO_2 emissions were not detected from the storage site and continue to report "NA" for as long as the measurement campaign is under way, and that it report "NO" for CO_2 emissions from storage for the year prior to injection taking place.	Yes. Comparability
IPPU			
I.20	2. General (IPPU)	For most categories, France references the Citepa website for details on the activities and EFs used (e.g. see p.258 for mineral industry and p.295 for metal industry). The Citepa website has a spreadsheet in which, for the latest submission year only, all pollutant and GHG EFs are reported along with AD according to various reporting programme classifications, including the IPCC categorization. The Party did not indicate the IPCC tier level for the EFs applied, or the source and the units of the EFs in the Citepa file, making assessment of the EFs used in the inventories difficult.	Yes. Transparency

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		The ERT recommends that France increase the transparency and comparability of its reporting by providing, on a yearly basis for each submission, in line with the UNFCCC Annex I inventory reporting guidelines, not only the tier level of each EF applied but also its units and reference.	
I.21	2.A.1 Cement production – CO_2	The ERT noted that the inter-annual change in the CO_2 IEF for cement production between 2016 (0.53 t/t) and 2017 (0.57t/t) is significant. The 2017 value is 8.2 per cent higher than the 2016 value, and higher than the IPCC default of 0.52 t/t. During the review, France explained that to monitor CO_2 emissions from cement production, it uses a bottom-up approach based on industrial plant emission declarations, and national clinker production is provided by the cement producers federation. While emissions were relatively stable between 2016 (6,639.02 kt CO_2) and 2017 (6,483.22 kt CO_2) and decreased by 2.3 per cent, clinker production decreased by 9.7 per cent owing to an inconsistency in the cement producers federation statistics for the 2017. The ERT believes that the CO_2 emissions reported were not affected by the error in the AD. The Party indicated that for its next submission, it would collect clinker production statistics from individual facilities and update the production figures and the time series AD, using the national statistics provided by the cement producers federation as a consistency check.	Yes. Accuracy
		The ERT recommends that France recalculate the time series of AD for clinker production on the basis of the plant-specific statistics it plans to collect.	
I.22	2.A.2 Lime production – CO_2	France reported total emissions for all types of lime production (hydraulic production, quicklime production and production in sugar mills) but the share of each type of production was not reported (NIR, pp.254 and 263). The Party reported that hydraulic lime production data are based on plant-level reporting except for two small plants whose production comprises 3 per cent of the national total (NIR, pp.254–255). For these plants, the share of 3 per cent was determined in 2004 and has been used for estimating emissions for the entire time series with no explanation or evidence reported as to why the percentage has been kept constant since 2004. The ERT noted that the CO_2 IEF for hydraulic lime production decreased from 519 kg/t in 2016 to 450 kg/t in 2017 (NIR, p.264). During the review, France provided the share of lime produced by type of lime over 2004–2017, which is as follows: quicklime, slaked lime and magnesium lime, 85.9 per cent of total lime production, lime produced in sugar mills, 8.7 per cent, and hydraulic lime, 5.4 per cent. The Party indicated that the 3 per cent referred to in the NIR for the two sites producing hydraulic lime was provided by the cement producers federation and represents around 4.5 kt/year of the total lime production. The ERT accepts the Party's assumption that the 3 per cent value can be kept constant. Further, France explained that the decrease in the CO_2 IEF results from the emission accounting methodology for one industrial plant producing hydraulic lime – this installation includes residual CO_2 not emitted, allowing it to reduce process emissions by 40 per cent. This methodological change was the subject of an update of the monitoring plan in 2017, in the context of the EU ETS, where the emissions were verified by an accredited independent inspector, resulting in a decrease of 9 kt in CO_2 emissions in 2017 from this plant. The Party indicated that it plans to explore this issue in more detail and would report on its investigation in its next annual submission.	Yes. Transparency
		The ERT recommends that France include information in its NIR on the production of lime by type of lime (hydraulic lime, quicklime and lime produced in sugar mills), the sources of the AD, including any assumptions regarding data provided by the cement producers federation, and the reasons for any change in the CO_2 EF between 2016 and 2017.	

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
I.23	2.F.1 Refrigeration and air conditioning – fluorinated gases	France reported in the NIR (p.325) that it estimated the emissions from two new sources, heat pump dryers and wine cellars, on the basis of equipment information available in a UNEP assessment report (UNEP, 2019). A new methodology developed by Citepa, based on the same principles as the previous tier 2a methodology but supplemented by a bottom-up approach, was used for estimating the emissions of fluorinated gases for these new sources. No information was included in the NIR on how data on heat pump dryers and wine cellars were collected, or how time-series consistency and completeness were ensured for this subcategory. France reported that the recalculations had an impact on the HFC emissions of category 2.F (product use as substitutes for ozone-depleting substances), but did not provide information to further explain the effect of the impact on the category. During the review, in response to a question raised by the ERT on the methodology used for estimating emissions from the new sources, the Party indicated that emissions from heat pump dryers and wine cellars were estimated with the same methodology as that used for other domestic refrigeration equipment on the basis of market data and nominal charge, using an EF that is applied to the bank to calculate fugitive emissions. The refrigerant quantities needed for production in France can be calculated on the basis of production data and refrigerant charge. Because the technology and the recycling process for heat pump dryers and wine cellars are similar to those for domestic refrigeration equipment, the same EFs for domestic refrigeration at charging and recovery rates at end of life are used. The ERT agrees with the methodology, AD and EFs applied by France for heat pump dryers and wine cellars. The ERT recommends that France describe in the NIR the methodology used for estimating fluorinated gas emissions from heat pump dryers and wine cellars, including the sources and values of AD and EFs, along with any assumptions applied. Further, the ERT encourages France to describe in the NIR the impact of any recalculations on the trend in emissions at the category, sector and national total level, as appropriate.	Yes. Transparency
I.24	2.G.1 Electrical equipment – SF_6	The ERT noted that the inter-annual change in the amount of SF_6 remaining in products at decommissioning between 2015 (1.44 t) and 2016 (2.76 t) is significant: the 2016 value is 91.9 per cent higher than the 2015 value. The amount remaining at decommissioning then declined by 32.5 per cent between 2016 and 2017 (1.86 t). During the review, France explained that the amount of SF_6 remaining at decommissioning declined in 2017 but the decline was of the same order of magnitude as the increase between 2015 and 2016. The Party indicated that it would investigate the peak value in 2016 with ADEME. The ERT noted that it is not possible to determine whether underestimation is occurring for the years 2015 to 2017; however, if the ERT were to assume that the value of 2.76 t, as reported in 2016, was appropriate for 2015 and 2017, the underestimation (approximately 30 kt) would be below the level of significance for France (232.30 kt CO_2 eq). This underestimation would not be subject to an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), and therefore was not included in the list of potential problems. The ERT recommends that France verify that the time series between 2015 and 2017 is accurate, and, if applicable, describe in the NIR the rationale for any fluctuation and peak in 2016 in order to improve the transparency and accuracy of reporting.	Yes. Consistency
I.25	2.G.4 Other (other product manufacture and use) – CO_2	France reported CO_2 emissions in CRF table 2(I).A-Hs2 from this category as "NA" in the 2017 submission, but in the 2019 submission reported emissions for the entire time series (474.42 kt in 2017). During the review, the Party explained that emissions from decarbonization were transferred from CRF table 2(I).A-Hs1 subcategory 2.A.4.d (other (other process uses of carbonates)) to CRF table 2(I).A-Hs2 subcategory 2.G.4, and that indirect CO_2 emissions from solvent use, based on non-methane volatile organic compound emissions and their speciation by	Yes. Accuracy

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		subactivity, were added to CRF table 2(I).A-Hs2 under category 2.G.4. The ERT noted, however, that CO_2 emissions in 2015 from subcategory 2.A.4.d in the 2017 annual submission were 923.15 kt CO_2 eq, and after the recalculation, CO_2 emissions from this subcategory for 2015 in the 2019 submission were reported as "NO". At the same time, emissions of only 444.34 kt CO_2 eq were reported for category 2.G.4 for 2015 in the 2019 annual submission. It is not clear where the remaining emissions of 478.81 kt CO_2 eq were reported. The ERT also noted that in accordance with the 2006 IPCC Guidelines (vol. 3, chap. 5.5,) indirect CO_2 emissions from solvent use are to be reported in category 2.D.3 solvent use. The ERT believes that future ERTs should consider this issue further to ensure that there is not an underestimate of emissions. The ERT recommends that the Party ensure that all CO_2 emissions from decarbonization that are reported under category 2.A.4.d (other process uses of carbonates) in the 2017 annual submission continue to be reported in category 2.G.4 (other – other product use and manufacture) and explain in the NIR the sources of emissions included under category 2.G.4. In addition, the ERT recommends that the Party report indirect CO_2 emissions from solvent use in category 2.D.3 solvent use.	
Agriculture			
A.19	3.B Manure management – CH_4 and N_2O	In CRF tables 3.B(a)s2 and 3.B(b), France reported N_2O emissions and other parameters (allocation of manure by climate region, the methane conversion factor associated with the MMS composting, and Nex per MMS for composting) using the notation key "IE". The CH_4 emissions reported in CRF table 3.B.a(s)1 do not reflect a separate calculation for CH_4 emissions from composting. During the review, the Party confirmed that composting MMS exist and that in terms of nitrogen they are not separated from liquid or solid MMS in the inventory. It added that there is little information on the composting MMS in the country, that it does not intend to implement any modification to manure management data in order to report distinctly the elements of the composting MMS and that composting is seldom practised for animal manure. Recognizing that manure subject to composting is not being excluded from the GHG inventory but rather being reported by applying EFs from liquid and/or solid MMS, the ERT concludes that the potential difference in the CH_4 and N_2O emissions would be below the threshold of significance for France (232.30 kt CO_2 eq), and therefore would not be subject to an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b). The ERT recommends that France implement data-collection efforts that allow for the separate reporting of data on the allocation of manure subject to composting by climate region and the methane conversion factor, Nex for composting and N_2O emissions associated with the composting MMS, noting that this would improve the accuracy and comparability of the inventory.	Yes. Accuracy
A.20	3.C.1 Irrigated – CH_4	In CRF table 3.C, the notation key "NE" is reported for the organic amendments added to continuously flooded fields for the entire time series. However, in the NIR (p.414), France states that 0.12 t dry matter/ha is incorporated into soils as organic amendments. In addition, that amount was included in CRF table 3.C in the 2017 annual submission and reported for the entire time series. During the review, the Party confirmed that the notation key "NE" should not have been reported – the value in the 2017 annual submission should have been used instead. This error does not impact the CH_4 emission calculations. The ERT recommends that France replace in CRF table 3.C the notation key "NE" with the correct amount of organic amendments added to continuously flooded fields (currently 0.12 t/ha).	Yes. Comparability

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
A.21	3.F Field burning of agricultural residues – CH_4 and N_2O	In CRF table 3.F, under category 3.F.2 (other non-specified (pulses)), an area of 2,070.89 kha was reported as burned for 2017 while CH_4 and N_2O emissions were reported as "NO". For category 3.F.5 (other (field burning of agricultural residues)), France reported values for CH_4 and N_2O emissions from other non-specified crops (0.76 kt for CH_4 and 0.02 kt for N_2O in 2017) but the notation key "NO" was reported for the area burned. During the review, the Party stated that the area of crops associated with CH_4 and N_2O emissions from some crops in category 3.F.5 were misreported under category 3.F.2. The Party added that category 3.F.5 includes CH_4 and N_2O emissions from vineyard residues; however, these areas are not burned (only the residues from vineyards are), therefore, the notation key "NA" should be used instead of "NO". The ERT acknowledged that the AD were reported in the wrong category, and that if vineyards were to be reported separately under category 3.A.5, the appropriate AD would be "NA". The ERT noted that the misreporting of AD does not impact the emission estimates. The ERT recommends that France report the AD from other non-specified crops in category 3.F.5 (other (field burning of agricultural residues)), removing those areas from category 3.F.2 (other non-specified (pulses)).	Yes. Convention reporting adherence
A.22	3.H Urea application – CO_2	The ERT noted that France used three-year averaged values for the amount of urea and for the amount of urea and ammonium nitrate solutions applied, based on data provided by the Fertilization Industries Union. The ERT identified possible differences between these data and the data reported to FAOSTAT statistical database (see http://www.fao.org/faostat/en/#home); however, upon explanation by the Party, the ERT determined that the Party's calculations were correct. France explained that it has annual data on fertilizer deliveries that it can use directly. It also emphasized that it calculates the average over three fertilization campaigns to smooth the effect of stock variation on farms, thereby avoiding misinterpretation of annual trends attributable to the gap between fertilizer delivery and fertilizer use. The ERT noted that the practice applied by France increases the accuracy of the AD used. The ERT recommends that France include in the NIR a description of AD collection for this category, including the use of three-year averaging for the fertilizer applied to take into account the effect of stock variation on farms.	Yes. Transparency
LULUCF			
L.29	4. General (LULUCF) – CO_2, CH_4 and N_2O	In the NIR, France provided general information on the methods and definitions applied for the LULUCF sector in chapter 6.3, and the information in subsequent chapters for each reporting category (chaps. 6.4–6.11) is based on these methods and definitions. The ERT noted that for clarity, the input data provided in chapter 6.3 could be included in the category chapters (specifically, NIR tables 116, 119, 121, 122 and 125) instead of being cross referenced. In chapters 6.4–6.11, estimates and category-specific information are provided by activity, gas and territory. In chapter 6.4 (on forests), land areas and emissions/removals (in Mt CO_2 eq) are provided in tables 127 and 128, but the same information is not provided for the other land categories (cropland, grassland, settlements, wetlands, other lands and other). Additional information provided by France as part of the 2019 annual submission (OMINEA Excel file and PDF file) does not allow the ERT to verify the emissions due to its detail and presentation of information as compared with that which is in the NIR itself. To improve the transparency and readability of the NIR, the previous ERT made a recommendation on provision of data sources, assumptions and methodologies used (see ID# L.4 in table 3).	Not an issue/problem

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		The ERT encourages France to include in the NIR a completeness/overview table indicating the estimated and not estimated emissions/removals by category, pool and territory, as well as the tier level of the methodology used and references to a description of the methodology (i.e. a page number in the NIR).	
L.30	4. General (LULUCF) – CO_2 and N_2O	France did not provide the methodology and input factors (e.g. carbon stock change) used for calculating the emissions/removals resulting from carbon stock changes (CO_2) and associated mineralization (N_2O) in mineral soils for all land conversions for the overseas territories. During the review, the Party indicated that the emissions/removals for the overseas territories included in the Kyoto Protocol were estimated and included in the national total for the respective reporting categories. The ERT recommends that France include in the NIR a methodological description, the assumptions and the carbon stock change factors used for calculating emissions and removals in mineral soils for forest land converted to other land uses (and vice versa) for the overseas territories.	Yes. Transparency
L.31	Land representation – CO_2, CH_4 and N_2O	The NIR does not include information on the design of the new land monitoring system, which, as stated by France during the review, will resolve problems of accuracy related to the identification of natural disturbances by type of forest and land use and of harvest statistics by type of forest and land use and will thus significantly increase the accuracy of the annual submission. Currently, for forest land, 40,000 sample plots of the TERUTI land-use survey are on forest land, while 80,000 sample plots are assessed in the NFI (noting that the NFI is not sampled each year). The areas of forest land from the NFI are currently not used in the land-use assessment. France indicated in the NIR (p.461) that it is planning to update the entire land monitoring system. During the review, the Party acknowledged that the NFI data could be used to improve the TERUTI statistics in the future but noted that the new system it is migrating to will use spatially explicit data. The ERT encourages France to implement the new land monitoring system, which will use spatially explicit data and will allow it to use both TERUTI and NFI data for preparing the land use and land-use change matrices and land representation information.	Not an issue/problem
L.32	4.A Forest land – CO_2	France did not provide growth values based on carbon fluxes separately for forest land remaining forest land and land converted to forest land in the NIR. The ERT noted that the implied carbon stock change factors for forest land remaining forest land are higher than or equal to those of land converted to forest land (e.g. for 2017, the implied carbon stock change factor for gains on forest land remaining forest land was 1.72 t C/ha, while that for gains on land converted to forest land was 1.41 t C/ha). The ERT also noted that, usually, young forest formations grow more quickly than older, more stable formations. During the review, the Party indicated that the differences are due to a disproportionate share of regions where land conversion to forest (or AR) and FM in forest land remaining forest land is occurring. France explained that French Guiana has a relatively high proportion of land under FM, with growth values close to zero. The Party also mentioned that age structure is not used by the NFI to estimate the parameters used for the actual inventory (e.g. growth, mortality). The ERT considers that this explanation does not sufficiently explain why the implied carbon stock change factors for forest land remaining forest land are higher than those for land converted to forest land. The ERT recommends that France provide sufficient information in the NIR on how the removal factors, based on biomass net growth increments, are estimated for land remaining forest land and land converted to forest land.	Yes. Transparency

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
L.33	4.A Forest land – CO_2	France states in its NIR (p.484) that it has been cautious to model the growth of tropical forests in its overseas countries and territories by only letting growth compensate for harvests. During the review, the Party clarified that all land is considered managed in French Guiana, even though a large part of the territory is covered by tropical forest. Only a very small portion of forest is subject to wood harvesting, which means that the wood removals are insignificant compared with natural processes in the forest (growth and mortality). Forest growth is fast in the wet tropical zone; when trees are cut, they are quickly replaced. By applying the IPCC default growth factors to forest areas in French Guiana, growth would be much greater than losses due to harvest. Therefore, the Party decided to limit this growth to the harvest rate. The growth rate is not based on the real situation but is rather fixed to an equilibrium between gains and losses for this area of forest remaining forest (a conservative approach). France mentioned that on the basis of new information on French Guiana, it is working on updating growth rates for the next annual submission. The ERT acknowledges that France is currently implementing its NFI in the overseas territories in order to obtain regular country-specific information on carbon stocks in different forest types and management regimes for those territories. The ERT recommends that France stratify the forest land area in French Guiana (and other overseas territories) such that growth rate factors can be differentiated by different management intensity in the forest (natural forest, secondary forest and planted forest in concessions) for land converted to forest land and forest land remaining forest land, and distinguish harvest statistics by land practice, stratified for each land-use category.	Yes. Accuracy
L.34	4.B Cropland 4.C Grassland – CO_2 and CH_4	Table 125 of the NIR provides the direct and indirect CO_2 and CH_4 EFs for organic soils for metropolitan France and the overseas territories. The EFs are taken from tables 2.1–2.3 of the Wetlands Supplement. For calculating indirect CO_2 and CH_4 emissions from organic soils in cropland and grassland, France selected EFs from the Wetlands Supplement for temperate areas and applied them for all territories. The indirect CO_2 EF (calculated using equation 2.5 and factors from table 2.2 of the Wetlands Supplement) assumes a temperate climate for both metropolitan France and the overseas territories. Its value is 0.1 t C-CO_2/ha/year. However, for the overseas territories, the ERT considers that a value of 0.98 t C-CO_2/ha/year ((0.57) × 1.6 × 0.82) should be applied for tropical areas applying that same equation. The ERT noted that while 0 t C/ha/year is selected as the EF for the temperate climate zone for cropland in metropolitan France and the overseas territories, for tropical regions (i.e. the overseas territories), a default EF of 7 t C/ha/year is recommended in table 2.3 of the Wetlands Supplement. The ERT recommends that France use the IPCC default EF values for tropical regions for its overseas territories when estimating CO_2 and CH_4 emissions from organic soils in grassland and cropland.	Yes. Accuracy
L.35	4.B.1 Cropland remaining cropland – CO_2	France reported net emissions/removals from the changes between different types of perennial crops (annual crops, vineyards and orchards) in the NIR for metropolitan France. For all crops in the overseas territories, an average of 10 t C/ha, based on the defaults in the 2006 IPCC Guidelines (vol. 4, table 5.9), was used as the carbon stock change factor. The ERT considers that this value should be used only for the above-ground biomass stock of a perennial cropping system immediately after conversion to cropland and noted that the 2006 IPCC Guidelines also provide above-ground long-term biomass stocks in tables 5.1–5.3. During the review, the Party noted that the value of 10 t C/ha was used for above- and below-ground biomass, and covers the entire category of cropland, without distinguishing between perennial and non-perennial crops, for all overseas territories.	Yes. Accuracy

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		The ERT recommends that France distinguish between perennial and annual crops in the area data for its overseas territories, using, in the absence of country-specific information, default carbon stock change factors from tables 5.1–5.3 of the 2006 IPCC Guidelines (vol. 4).	
L.36	4.B.1 Cropland remaining cropland – CO_2	France assumed zero emissions and removals from the fluctuations in living biomass in cropland remaining cropland when a subcategory does not change its land use type (e.g. orchard remaining orchard). The ERT considers that emissions/removals resulting from fluctuations in those perennial crops should be estimated. In the improvement chapter of the NIR (chap. 10), the Party indicates its intention to estimate these variations on the basis of the amount (crop count) of vines and orchards per hectare per year.	Yes. Accuracy
		The ERT recommends that France estimate and report in CRF table 4.B and the NIR the emissions/removals from living biomass in cropland remaining cropland when a subcategory does not change its land use type (e.g. orchard remaining orchard) for the metropolitan and overseas territories, by either collecting data on the specific growth rates and wood densities, as well as harvest statistics (e.g. from private growers), for different perennial crops or by collecting regular data on growing stock through a field survey.	
L.37	4.B.2 Land converted to cropland – CO_2	France reported in CRF table 4.B "NE" for gains in living biomass in forest land converted to cropland and reported a net difference in the losses due to the conversion from forest land to cropland (–4.36 t C/ha in 2017). The Party did not specify in the NIR how the gains, specifically those from perennial crops, had been treated in terms of taking into account the 20-year transition period. During the review, France explained that gains were included in losses by using a stock difference method to account for the net emissions in cropland and by subtracting the final carbon stocks under equilibrium for forest land and for cropland.	Yes. Comparability
		The ERT recommends that France include the net losses due to the conversion from forest land to cropland in CRF table 4.B under losses, and use the key notation "IE" for gains in the carbon stock change for living biomass per area to indicate that the gains are inherently part of the losses.	
L.38	4.C.1 Grassland remaining grassland – CO_2	France provided in NIR table 151 the fluxes of CO_2 for conversions among grassland subcategories (grass, thickets, hedges and shrubs), and in the text of the NIR explained that for hedges and thickets, the same carbon stocks for living woody biomass as those for forests were used in the calculations (58 t C/ha). However, the Party did not specify in the NIR which forest region the value is based on, and the value is not present in table 116 (forest carbon stocks by region and forest type). During the review, France clarified that the value 58 t C/ha reflects above-ground and below-ground carbon (from NIR tables 116 and 119) and that NIR table 151 is only a subset of a series of tables for 1990 for the Alsace region containing values that are variable for hedges and thickets.	Yes. Transparency
		The ERT recommends that France include in the NIR an explanation of how the carbon stock change factors for thickets and hedges are estimated and the assumptions made when compiling NIR table 151. The ERT encourages the Party to provide information on 1990 and include values for at least the five most recent years (preferably the 10 most recent years).	
L.39	4.G HWP – CO_2	The NIR (p.536) states that the waste from wood is solely accounted for in the waste sector. However, according to the 2006 IPCC Guidelines, CO_2 emissions/removals from HWP stored in SWDS are to be estimated in case the difference between annual carbon released from SWDS and the HWP additions to SWDS are significant (see the	Yes. Transparency

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		decision tree in figure 12.1, vol. 4). France reported the notation key "NE" in CRF table 4.Gs1. During the review, the Party explained that it does not consider providing information on SWDS a priority. The ERT recommends that France provide information in the NIR on the HWP in SWDS, namely, whether the emissions/removals are significant; if they are insignificant, "NE" can be reported, but if they are significant, AD should be collected and tier 1 data, consistent with the waste sector, used for calculating the estimates.	
L.40	4(I) Direct N_2O emissions from nitrogen inputs to managed soils – N_2O	France reported in CRF table 4(I) "NO" for N_2O emissions from nitrogen fertilization in forest land, wetlands, settlements and other lands, and stated in the NIR that N_2O emissions are not estimated for forest land (p.493) and are not occurring for wetlands (p.522) and other lands (p.528) (nitrogen fertilization practice in settlements is not mentioned). According to the 2006 IPCC Guidelines, it is mandatory to report N_2O emissions from nitrogen fertilization on land converted to forest land, cropland, grassland and settlements, as well as grassland remaining grassland (N_2O emissions from cropland and grassland are to be reported under the agriculture sector) (vol. 4, p.11.12). The ERT recommends that France estimate N_2O emissions from nitrogen fertilization in forest land, or if the volumes of fertilizer cannot be distinguished from those reported under the agriculture sector (cropland and grassland), report all the emissions under the agriculture sector and indicate in the documentation box to CRF table 4(I) and in the NIR where these emissions are reported. The ERT also recommends that the Party ensure that the description of the use of the notation keys in the NIR matches their actual use in the CRF tables.	Yes. Completeness
L.41	4(III) Direct N_2O emissions from nitrogen mineralization/ immobilization – N_2O	France did not estimate N_2O emissions due to mineralization associated with carbon stock changes in soils in grassland remaining grassland (CRF table 4(III)), which is a mandatory reporting requirement. These N_2O emissions are reported as "NE". In CRF table 9, the Party did not provide the reason for reporting them as "NE". During the review, France confirmed that these N_2O emissions were not estimated for metropolitan France or the overseas territories, and indicated that they would be included in the next submission. The ERT recommends that France provide in CRF table 4(III) and in the NIR estimates for N_2O emissions due to mineralization associated with carbon stock changes in soils in grassland remaining grassland using the carbon stock changes reported in CRF table 4.C.	Yes. Completeness
L.42	4(V) Biomass burning – CO_2, CH_4 and N_2O	France prepared country-specific EFs for estimating emissions from biomass burning using the method of Simpson et al. (1999). The parameters needed for the equation are the average fraction of carbon in fuelwood, the area burned (ha), the average total biomass of fuel material per unit area (kg/m^2), the fraction of the average above-ground biomass relative to the total average biomass and the burning efficiency (fraction burned) of the above-ground biomass. The EFs for metropolitan France and the overseas territories are based on those parameters (table 5 of Simpson et al. (1999)) and living biomass values specific to burned areas in the metropolitan and overseas territories (from NIR table 137). During the review, in response to a question from the ERT, France noted that the emissions from burning are strongly influenced by the burning efficiency and the fraction of the total above-ground biomass, and that the study only provides values for boreal, temperate and Mediterranean regions, but not for tropical regions. The ERT recommends that France, in order to correct for the representation bias in the parameters used and thus improve the accuracy of the inventory, collect additional information for the tropical regions in order to estimate	Yes. Accuracy

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a]
		emissions from burned areas. The ERT also recommends that the Party document the assumptions and methodology for each EF by gas, region and forest type.	
Waste			
W.15	5. General (waste) – CH_4 and N_2O	France included two new tables in the NIR (tables 158 and 159) without indicating to which geographical coverage their data relate (i.e. the Convention or the Kyoto Protocol). During the review, the Party clarified that the information provided in tables 158 and 159 relates to the territory covered under the Kyoto Protocol. The ERT recommends that France clearly specify that tables 158 and 159 of the NIR relate to the geographical coverage under the Kyoto Protocol. The ERT encourages the Party to report AD in its NIR for geographical coverage both under the Convention and under the Kyoto Protocol.	Yes. Transparency
W.16	5.A.1 Managed waste disposal sites – CH_4	In the NIR (p.543), France indicated that ADEME acts primarily as the preferred data provider for the national emissions inventory by its regular publication of the results of the work and surveys it funds. The ERT noted several inconsistencies in the NIR related to ADEME. For example, on page 541 it is mentioned that 221 non-hazardous waste storage facilities are the subjects of the ADEME household waste treatment facilities census; on page 545 it is indicated that ADEME covers approximately 240 installations in operation, all of which are compacted; and on page 548, 228 SWDS are reported. During the review, the Party informed the ERT that ADEME is the agency in charge of the inventory of the waste treatment sites in France, which include all SWDS receiving municipal solid waste. The inconsistencies are related to different reporting years (i.e. some data have not been updated since the previous annual submission). The ERT recommends that France report in the NIR up-to-date information on the number of SWDS in operation.	Yes. Transparency
W.17	5.A.1 Managed waste disposal sites – CH_4	France reported in CRF table 5.A the same AD for annual waste disposed of at anaerobic managed waste disposal sites (category 5.A.1) under the Convention and under the Kyoto Protocol for the entire time series (17,021.34 kt in 2017). However, the ERT noted that different CH_4 emissions were reported from 2009 onward: 432.21 kt under the Convention and 427.53 kt under the Kyoto Protocol in 2017. During the review, the Party confirmed that this is a reporting issue only and it does not impact the reported CH_4 emissions. The amounts of waste disposed of at anaerobic managed waste disposal sites under the Convention and under the Kyoto Protocol are different from 2008, when the first managed landfill opened in an overseas territory not part of the European Union. While the Party reported 17,021.34 kt as the AD under the Convention and under the Kyoto Protocol for 2017, this value in fact corresponds to the AD for metropolitan France only. The annual waste disposed of at anaerobic managed waste disposal sites reported under the Convention should be 18,463 kt and under the Kyoto Protocol 18,319 kt for 2017. The ERT recommends that France report the appropriate AD for annual waste disposed of at anaerobic managed waste disposal sites (category 5.A.1) under the Convention and under the Kyoto Protocol, ensuring that the waste in overseas territories is included.	Yes. Convention reporting adherence
W.18	5.A.2 Unmanaged waste disposal sites – CH_4	France reported in the NIR (p.545) that, in overseas territories not included in the European Union, unmanaged storage sites are also considered. However, the ERT noted that in CRF table 5.A.2, the notation key "NO" is used for the AD for annual waste at SWDS for the entire time series under the Convention. During the review, the Party acknowledged that this is a reporting issue and the AD are not reported correctly for France's submission under the Convention.	Yes. Convention reporting adherence

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
		The ERT recommends that France replace the notation key "NO" with the appropriate AD for unmanaged waste at SWDS under the Convention.	
W.19	5.D Wastewater treatment and discharge – N_2O	In CRF table 5.D, France reported $F_{NON-CON}$ as "NE" for the entire time series. During the review, the Party explained that the value used for this parameter is 1.0 as there are no garbage disposals in France and therefore no waste food is washed down the drain. However, the ERT noted that according to the 2006 IPCC Guidelines (vol. 5, table 6.11), the range for $F_{NON-CON}$ varies from 1.0 to 1.5, and the default value of 1.1 should be applied for countries with no garbage disposals. Failure to correct for $F_{NON-CON}$ leads to an underestimation of emissions; however, the ERT estimates that the underestimation is 37.25 kt CO_2 eq, which is below the level of significance for France (232.30 kt CO_2 eq), and therefore in accordance with decision 22/CMP.1, annex, paragraph 80(b), this issue was not included in the list of potential problems. The ERT recommends that France either apply the default value of 1.1 for the parameter $F_{NON-CON}$, or provide in the NIR a clear justification for applying an $F_{NON-CON}$ of 1.0.	Yes. Accuracy
KP-LULUCF activities			
KL.19	General (KP-LULUCF activities)	It remains unclear from the NIR whether France distinguishes natural forests from planted forests, particularly for the overseas territories, and, if it does, how it does so. In CRF table NIR-2.1, France reported "NE" for the areas of natural forests converted to planted forests. During the review, the Party indicated that information regarding forest plantations is not reported and that the current land-use monitoring system does not allow it to distinguish between natural and planted forests. Therefore, currently in the NFI all forests are classified under one category for which increment, mortality and harvest are estimated for four land-cover types (conifers, broadleafs, mixed and poplar) for metropolitan France and for broadleafs only for the overseas territories. The ERT noted that in accordance with decision 2/CMP.8, annex II, paragraph 5(d), Parties shall report and account for all emissions from the conversion of natural forests to planted forests. The ERT recommends that France provide definitions for planted and natural forests, and distinguish the areas of planted and natural forests in the NIR and report their total areas in CRF table NIR-2.1 instead of "NE". The ERT encourages the Party, when conducting the new NFI surveys for carbon stock change factors, to introduce the land-use aspect, specifically when collecting information in regions with different FM regimes.	Yes. KP reporting adherence
KL.20	FM – General	France reported the value of the technical correction to the FMRL in the NIR (p.599) and in the CRF accounting table (21,795 kt CO_2 eq). However, the NIR does not include a description of how the technical correction was calculated or the background assumptions of the model used, which would enable the ERT to ensure that the forest area under FM in the overseas departments was considered and to demonstrate methodological consistency between the FMRL and actual GHG estimates regarding HWP and natural disturbances (inclusion of background level and margin). According to decision 2/CMP.8, annex, paragraph 5(e–f), Parties shall include information in the NIR on how methodological consistency, including in historical GHG estimates, has been ensured between the FMRL and actual GHG emissions and removals, including by means of technical corrections. During the review, France provided the calculation of the FMRL correction and the ERT did not identify any errors in it. The ERT recommends that France include in the NIR the calculation of the technical correction and a description of how it ensures consistency between the FMRL and the annual GHG inventory.	Yes. Transparency

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
KL.21	FM – General	In responding to a previous recommendation (see ID# KL.9 in table 3), France updated the FMRL correction to include the background level of all types of natural disturbances. The Party also provided the background level and margin in CRF tables 4(KP-I)A.1.1 for AR and 4(KP-I)B.1.3 for FM. The background level and margin for AR were reported as 0.03 and 0.004 kt CO_2 eq, respectively, while the background level and margin for FM were reported as 382.51 and 152.99 kt CO_2 eq, respectively. The ERT noted that information related to the calculation of the background level and the technical correction is not included in the NIR. According to decision 2/CMP.7, annex, paragraph 33, Parties shall provide the necessary information on the background and margin in their annual inventories, which includes: (a) Background information on the estimation of the background level and margin for AR and FM; (b) The results of annual disturbances exceeding the background level plus the margin for AR and FM; (c) Information that emissions from salvage logging have not been excluded; (d) The exclusion of disturbances that lead to land conversion. During the review, France explained that it is still deciding whether to exclude natural disturbances in its accounting. According to decision 2/CMP.7, annex, paragraph 34, Parties should have a system in place to monitor lands subject to natural disturbances and be able to demonstrate through the provision of information in the NIR that: (a) All land subject to natural disturbances is identified, including by geo-referenced location and year and type of disturbance; (b) Emissions from disturbances and subsequent removals are estimated; (c) No land-use changes are happening in the areas for which disturbances are excluded, including by providing information to explain the methods and criteria for identifying any future land-use changes on those land areas during the commitment period; (d) Disturbances were beyond the control of and not materially influenced by the Party (e.g. the Party should have clear definitions for controlled and wildfire burning); (e) Efforts for rehabilitation have been made; (f) Emissions from salvage logging after the disturbance are not excluded. The ERT recommends that France include in the NIR the calculation and results of the background level and margin for both AR and FM that have been provided in CRF tables 4(KP-I)A.1.1 and 4(KP-I)B.1.3. The ERT encourages the Party, if it intends to use the provision of natural disturbances, to put in place a tracking system to enable it to report information consistent with decision 2/CMP.7, annex, paragraph 34.	Yes. Transparency
KL.22	HWP – CO_2	France reported in the NIR (p.535) that deforested areas account for less than 5 per cent of total FM and deforestation and that the Party therefore assumed that all HWP, including the wood originating from a deforestation event, can be accounted for under FM. France reported "NO" for HWP originating from deforestation, AR and FM, and reported "NO" also for HWP originating from harvest during a deforestation event and from other land uses in CRF table 4(KP-I)C. The ERT noted that, in accordance with decision 2/CMP.8, annex II, paragraph 2(g)(v), HWP from deforested (during land conversion) land is to be accounted for as instantaneous oxidation, and information on the harvested quantities must be reported in the information item of CRF table 4(KP-I)C. Volumes of HWP	Yes. Accuracy

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem?*[a]
		originating from deforestation, AR and FM must be included in CRF table 4(KP-I)C, and, if possible, be disaggregated by activity. During the review, the Party explained that it does not account for subsequent gains and losses on deforested land (i.e. areas that remain deforested). The ERT noted that under this assumption, the HWP from deforested areas should not be accounted for as HWP in order to avoid an overestimation of removals (in accordance with decision 16/CMP.1 (see the Kyoto Protocol Supplement, p.1.8)). The ERT recommends that France include in CRF table 4(KP-I)C information on the amount of wood originating from deforestation, AR and FM, and include the volumes of wood originating from deforestation (during the event) and other land uses in cells D17 and D18, respectively, of that table. The ERT also recommends that the Party provide in the NIR information that demonstrates that HWP originating from wood harvested during a land-use change on deforested land have been separated from HWP originating from areas under FM.	
KL.23	HWP – CO_2	France reported HWP since 1990 and accounted for HWP with an FM projection during the first commitment period of the Kyoto Protocol. The HWP net removals estimated and reported in CRF table 4.Gs1 (–1,195.10 kt CO_2 eq in 2017) are lower than the total net removals reported in CRF table 4(KP-I)C (–3,523.09 kt CO_2 eq in 2017). During the review, the Party indicated that it deducts HWP already accounted for under the first commitment period (in accordance with decision 2/CMP.7, annex, para. 16). However, a note explaining this was not provided with the calculation in the NIR or relevant CRF table. According to decision 2/CMP.8, annex II, paragraph 2(g)(iv), Parties shall provide information on how emissions from HWP accounted for in the first commitment period have been excluded from the accounting of the second commitment period (consistent with the data provided in CRF table 4(KP-I)C). The ERT recommends that France provide in the NIR the quantitative values and calculation for HWP accounted for in the first commitment period of the Kyoto Protocol that are excluded from the second commitment period accounting.	Yes. Transparency

[a] Recommendations made by the ERT during the review are related to issues as defined in para. 81 of the UNFCCC review guidelines, or problems as defined in para. 69 of the Article 8 review guidelines.

VI. Application of adjustments

11. The ERT did not identify the need to apply any adjustments to the 2019 annual submission of France.

VII. Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol

12. France has elected commitment period accounting and therefore the issuance and cancellation of units for KP-LULUCF activities is not applicable to the 2019 review.

VIII. Questions of implementation

13. No questions of implementation were identified by the ERT during the individual review of the Party's 2019 annual submission.

Annex I

Overview of greenhouse gas emissions and removals for France for submission year 2019 and data and information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, as submitted by France in its 2019 annual submission

1. Tables 1–4 provide an overview of total GHG emissions and removals as submitted by France.

Table 1
Total greenhouse gas emissions for France, base year[a]–2017
(kt CO_2 eq)

	Total GHG emissions excluding indirect CO_2 emissions		*Total GHG emissions including indirect CO_2 emissions[b]*		*Land-use change (Article 3.7 bis as contained in the Doha Amendment)[c]*	*KP-LULUCF activities (Article 3.3 of the Kyoto Protocol)[d]*	*KP-LULUCF activities (Article 3.4 of the Kyoto Protocol)*	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*			*CM, GM, RV, WDR*	*FM*
FMRL								–67 410.00
Base year	525 899.34	548 058.61	NA	NA	NA		NO	
1990	525 909.56	548 068.83	NA	NA				
1995	521 247.08	543 125.61	NA	NA				
2000	535 687.54	552 469.31	NA	NA				
2010	472 248.17	511 840.62	NA	NA				
2011	450 992.67	485 516.06	NA	NA				
2012	448 531.84	485 362.85	NA	NA				
2013	444 716.88	485 453.79	NA	NA		2 358.79	NE, IE, NO	–55 435.50
2014	422 070.57	454 913.77	NA	NA		2 328.50	NE, IE, NO	–48 069.79
2015	424 054.65	459 868.12	NA	NA		1 884.26	NE, IE, NO	–50 633.90
2016	427 062.73	460 643.52	NA	NA		1 625.17	NE, IE, NO	–47 977.98
2017	432 661.53	464 592.51	NA	NA		1 319.28	NE, IE, NO	–45 875.94

Note: Emissions/removals reported in the sector other (sector 6) are not included in the total GHG emissions.

[a] "Base year" refers to the base year under the Kyoto Protocol, which is 1990 for all gases except NF_3, for which the base year is 1995. France has not elected any activities under Article 3, para. 4, of the Kyoto Protocol. For activities under Article 3, para. 3, of the Kyoto Protocol and FM under Article 3, para. 4, only the inventory years of the commitment period must be reported.

[b] The Party did not report indirect CO_2 emissions in CRF table 6.

[c] The value reported in this column refers to 1990.

[d] Activities under Article 3, para. 3, of the Kyoto Protocol, namely AR and deforestation.

Table 2
Greenhouse gas emissions by gas for France, excluding land use, land-use change and forestry, 1990–2017
(kt CO_2 eq)

	CO_2[a]	*CH_4*	*N_2O*	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	*SF_6*	*NF_3*
1990	400 766.73	69 262.80	66 202.99	4 402.20	5 202.47	NO, NA	2 215.16	16.48
1995	397 465.82	70 843.08	67 263.66	1 890.38	3 064.56	NO, NA	2 591.85	6.26
2000	415 971.01	69 371.32	55 123.86	6 611.62	2 997.49	NO, NA	2 374.13	19.89
2010	389 757.92	61 269.60	41 991.38	17 297.12	617.37	NO, NA	875.10	32.13
2011	365 160.79	59 950.79	40 518.74	18 429.39	774.04	NO, NA	650.96	31.36
2012	365 768.12	58 595.31	40 743.39	18 790.02	790.35	NO, NA	655.26	20.40
2013	366 774.38	58 054.86	40 510.88	18 848.97	670.50	NO, NA	583.57	10.63
2014	335 342.53	57 854.61	41 742.26	18 877.85	615.88	NO, NA	474.26	6.37
2015	341 030.29	57 070.97	41 599.09	19 126.85	536.57	NO, NA	498.11	6.23
2016	342 881.18	56 683.46	40 619.09	19 281.37	666.01	NO, NA	506.58	5.84
2017	346 460.44	56 255.52	41 989.69	18 711.33	707.68	NO, NA	460.21	7.64
Per cent change 1990–2017	**–13.6**	**–18.8**	**–36.6**	**325.0**	**–86.4**	**NA**	**–79.2**	**–53.7**

Note: Emissions/removals reported in the sector other (sector 6) are not included in the total GHG emissions.
[a] France did not report indirect CO_2 emissions in CRF table 6.

Table 3
Greenhouse gas emissions by sector for France, 1990–2017
(kt CO_2 eq)

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
1990	381 293.81	67 200.35	82 311.57	–22 159.27	17 263.11	–
1995	379 039.69	63 870.47	79 737.09	–21 878.54	20 478.37	–
2000	394 050.31	53 869.38	82 686.69	–16 781.77	21 862.93	–
2010	368 007.16	46 987.19	76 462.47	–39 592.45	20 383.79	–
2011	343 432.50	46 569.99	75 657.41	–34 523.39	19 856.15	–
2012	346 073.04	44 635.02	75 562.71	–36 831.01	19 092.08	–
2013	346 939.12	44 836.14	75 077.14	–40 736.91	18 601.38	–
2014	315 276.27	44 172.07	77 125.64	–32 843.20	18 339.79	–
2015	321 985.23	43 752.87	76 838.13	–35 813.46	17 291.89	–
2016	324 431.83	43 413.59	75 786.90	–33 580.79	17 011.21	–

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
2017	327 251.45	43 924.74	76 208.53	–31 930.98	17 207.79	–
Per cent change 1990–2017	**–14.2**	**–34.6**	**–7.4**	**44.1**	**–0.3**	**NA**

Notes: (1) Emissions/removals reported in the sector other (sector 6) are not included in the total GHG emissions. (2) France did not report emissions/removals in the sector other (sector 6); the corresponding cells in the CRF tables were blank. (3) France did not report indirect CO_2 emissions in CRF table 6.

Table 4

Greenhouse gas emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by activity, base year[a]–2017, for France

(kt CO_2 eq)

	Article 3.7 bis as contained in the Doha Amendment[b]	*Activities under Article 3, paragraph 3, of the Kyoto Protocol*		*FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol*				
	Land-use change	*AR*	*Deforestation*	*FM*	*CM*	*GM*	*RV*	*WDR*
FMRL				–67 410.00				
Technical correction				21 795.00				
Base year	NA				NO	NO	NO	NO
2013		–9 664.00	12 022.79	–55 435.50	NE, IE	NE, IE	NE	NO, NE
2014		–9 651.53	11 980.03	–48 069.79	NE, IE	NE, IE	NE	NO, NE
2015		–10 142.84	12 027.10	–50 633.90	NE, IE	NE, IE	NE	NO, NE
2016		–10 450.66	12 075.83	–47 977.98	NE, IE	NE, IE	NE	NO, NE
2017		–10 726.10	12 045.37	–45 875.94	NE, IE	NE, IE	NE	NO, NE
Per cent change base year–2017					**NA**	**NA**	**NA**	**NA**

Notes: Values in this table include emissions from land subject to natural disturbances, if applicable.

[a] France has not elected to report on any activities under Article 3, para. 4, of the Kyoto Protocol. For activities under Article 3, para. 3, of the Kyoto Protocol, and FM under Article 3, para. 4, only the inventory years of the commitment period must be reported.

[b] The value reported in this column refers to 1990.

2. Table 5 provides an overview of key relevant data from France's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 5
Key relevant data for France under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the 2019 annual submission

Key parameters	*Values*
Periodicity of accounting	(a) AR: commitment period accounting (b) Deforestation: commitment period accounting (c) FM: commitment period accounting (d) CM: not elected (e) GM: not elected (f) RV: not elected (g) WDR: not elected
Election of activities under Article 3, paragraph 4	None
Election of application of provisions for natural disturbances	Yes, for AR and FM
3.5% of total base-year GHG emissions, excluding LULUCF	19 181.951 kt CO_2 eq (153 455.612 kt CO_2 eq for the duration of the commitment period (see ID# KL.15 in table 3 in this report))
Cancellation of AAUs, CERs and ERUs and/or issuance of RMUs in the national registry for:	
AR	NA
Deforestation	NA
FM	NA
CM	NA
GM	NA
RV	NA
WDR	NA

Annex II

Information to be included in the compilation and accounting database

Tables 1–5 include the information to be included in the compilation and accounting database for France. Data shown are from the original annual submission of the Party, including the latest revised estimates submitted, adjustments (if applicable) and the final data to be included in the compilation and accounting database.

Table 1
Information to be included in the compilation and accounting database for 2017, including on the commitment period reserve, for France
($t CO_2 eq$)

	Original submission	*Revised estimate*	*Adjustment*	*Final*
CPR	2 653 819 345	2 713 243 349	–	2 713 243 349
Annex A emissions for 2017	–	–	–	–
CO_2[a]	346 460 439	–	–	346 460 439
CH_4	56 255 520	–	–	56 255 520
N_2O	41 989 694	–	–	41 989 694
HFCs	18 711 334	–	–	18 711 334
PFCs	707 679	–	–	707 679
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	460 208	–	–	460 208
NF_3	7 637	–	–	7 637
Total Annex A sources	**464 592 511**	**–**	**–**	**464 592 511**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2017	–	–	–	–
AR	–10 726 097	–	–	–10 726 097
Deforestation	12 045 374	–	–	12 045 374
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2017	–	–	–	–
FM	–45 875 938	–	–	–45 875 938

[a] The Party did not report indirect CO_2 emissions in CRF table 6.

Table 2
Information to be included in the compilation and accounting database for 2016 for France
($t CO_2 eq$)

	Original submission	*Revised estimate*	*Adjustment*	*Final*
Annex A emissions for 2016	–	–	–	–
CO_2[a]	342 881 180	–	–	342 881 180
CH_4	56 683 457	–	–	56 683 457
N_2O	40 619 090	–	–	40 619 090
HFCs	19 281 371	–	–	19 281 371
PFCs	666 008	–	–	666 008
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	506 579	–	–	506 579
NF_3	5 838	–	–	5 838
Total Annex A sources	**460 643 523**	–	–	**460 643 523**

	Original submission	*Revised estimate*	*Adjustment*	*Final*
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2016	–	–	–	–
AR	–10 450 657	–	–	–10 450 657
Deforestation	12 075 831	–	–	12 075 831
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2016	–	–	–	–
FM	–47 977 975	–	–	–47 977 975

[a] The Party did not report indirect CO_2 emissions in CRF table 6.

Table 3
Information to be included in the compilation and accounting database for 2015 for France
(t CO_2 eq)

	Original submission	*Revised estimate*	*Adjustment*	*Final*
Annex A emissions for 2015	–	–	–	–
CO_2[a]	341 030 292	–	–	341 030 292
CH_4	57 070 974	–	–	57 070 974
N_2O	41 599 089	–	–	41 599 089
HFCs	19 126 854	–	–	19 126 854
PFCs	536 565	–	–	536 565
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	498 109	–	–	498 109
NF_3	6 234	–	–	6 234
Total Annex A sources	**459 868 117**	–	–	**459 868 117**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2015	–	–	–	–
AR	–10 142 835	–	–	–10 142 835
Deforestation	12 027 097	–	–	12 027 097
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2015	–	–	–	–
FM	–50 633 899	–	–	–50 633 899

[a] The Party did not report indirect CO_2 emissions in CRF table 6.

Table 4
Information to be included in the compilation and accounting database for 2014 for France
(t CO_2 eq)

	Original submission	*Revised estimate*	*Adjustment*	*Final*
Annex A emissions for 2014	–	–	–	–
CO_2[a]	335 342 533	–	–	335 342 533
CH_4	57 854 611	–	–	57 854 611
N_2O	41 742 255	–	–	41 742 255
HFCs	18 877 851	–	–	18 877 851
PFCs	615 881	–	–	615 881
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	474 265	–	–	474 265
NF_3	6 371	–	–	6 371
Total Annex A sources	**454 913 767**	–	–	**454 913 767**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2014	–	–	–	–
AR	–9 651 530	–	–	–9 651 530
Deforestation	11 980 032	–	–	11 980 032

	Original submission	*Revised estimate*	*Adjustment*	*Final*
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2014	–	–	–	–
FM	–48 069 785	–	–	–48 069 785

[a] The Party did not report indirect CO_2 emissions in CRF table 6.

Table 5

Information to be included in the compilation and accounting database for 2013 for France

($t\ CO_2\ eq$)

	Original submission	*Revised estimate*	*Adjustment*	*Final*
Annex A emissions for 2013	–	–	–	–
CO_2[a]	366 774 381	–	–	366 774 381
CH_4	58 054 860	–	–	58 054 860
N_2O	40 510 883	–	–	40 510 883
HFCs	18 848 967	–	–	18 848 967
PFCs	670 495	–	–	670 495
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	583 573	–	–	583 573
NF_3	10 630	–	–	10 630
Total Annex A sources	**485 453 789**	–	–	**485 453 789**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2013	–	–	–	–
AR	–9 664 001	–	–	–9 664 001
Deforestation	12 022 787	–	–	12 022 787
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2013	–	–	–	–
FM	–55 435 505	–	–	–55 435 50

[a] The Party did not report indirect CO_2 emissions in CRF table 6.

Annex III

Additional information to support findings in table 2 in this report

Missing categories that may affect completeness

The categories for which methods are included in the 2006 IPCC Guidelines that were reported as "NE" or for which the ERT otherwise determined that there may be an issue with the completeness of reporting in the Party's inventory are the following:

(a) 4.B.2 land converted to perennial crops (CO_2) (see ID# L.18 in table 3 in this report);

(b) Biomass losses from the conversion of perennial crops to other land uses (CO_2) (see ID# L.19 in table 3 in this report);

(c) 4.C.1 living biomass and soil carbon in changes between grassland subcategories in grassland remaining grassland (CO_2 and N_2O) (see ID# L.22 in table 3 in this report);

(d) 4.C.2 living biomass and soil carbon in land converted to grassland (CO_2 and N_2O) (see ID# L.22 in table 3 in this report);

(e) 4.F.2 soil carbon conversions of cropland, grassland, wetlands and settlements to other land (CO_2 and N_2O) (see ID# L.25 in table 3 in this report);

(f) 4(I) nitrogen fertilization in forest land (N_2O) (see ID# L.40 in table 5 in this report);

(g) 4(III) nitrogen mineralization/immobilization associated with loss/gain of soil organic matter on grassland remaining grassland (N_2O) (see ID# L.41 in table 5 in this report).

Annex IV

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

IPCC. 2003. Good Practice Guidance for Land Use, Land-Use Change and Forestry. J Penman, M Gytarsky, T Hiraishi, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies.
Available at http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.html.

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl.

IPCC. 2014. *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies.
Available at http://www.ipcc-nggip.iges.or.jp/public/kpsg.

IPCC. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Geneva: IPCC.
Available at http://www.ipcc-nggip.iges.or.jp/public/wetlands/.

B. UNFCCC documents

Annual review reports

Reports on the individual reviews of the 2012, 2013, 2014, 2015, 2016 and 2017 annual submissions of France, contained in documents FCCC/ARR/2012/FRA, FCCC/ARR/2013/FRA, FCCC/ARR/2014/FRA, FCCC/ARR/2015/FRA, FCCC/ARR/2016/FRA and FCCC/ARR/2017/FRA, respectively.

Other

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at https://unfccc.int/sites/default/files/resource/AGI%202019.pdf.

Annual status report for France for 2019. Available at https://unfccc.int/sites/default/files/resource/asr2019_FRA.pdf.

Report of the technical assessment of the forest management reference level submission of France submitted in 2011. Available at https://unfccc.int/documents/6880#beg.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of France. Available at https://unfccc.int/sites/default/files/resource/docs/2017/irr/fra.pdf.

C. Other documents used during the review

Responses to questions during the review were received from Pascale Vizy (Ministry of the Environment, Energy and the Sea) and Joseph Hajjar (Ministry of Ecological Transition and Solidarity), including additional material on the methodology and assumptions used. The following references are reproduced as received:

Agreste. 2011. Méthodologie L'utilisation du territoire en 2010 Teruti-Lucas (Methodology for Territorial Use in 2010 TERUTI-Lucas).

Agreste. 2015. Méthodologie L'utilisation du territoire en 2014 Teruti-Lucas (Methodology for Territorial Use in 2014 TERUTI-Lucas). Available at:

http://agreste.agriculture.gouv.fr/enquetes/territoire-prix-des-terres/teruti-lucas-utilisation-du/.

Agreste 2015b. Chiffres et Données Agriculture (Figures and Data Agriculture), No. 229.

Ballet, Bertrand. 2018. Rénovation De L'enquête Teruti (Renovation of the TERUTI Investigation). 13es Journées de méthodologie statistique de l'Insee (JMS) / 12-14 June 2018 / PARIS. Available at: http://jms-insee.fr/jms2018s23_4/.

Citepa. 2019. *Méthodologie des inventaires OMINEA (OMINEA Inventory Methodology). OMINEA - édition 2019*. Available at https://www.citepa.org/fr/activites/inventaires-des-emissions/ominea.

Colas Robert. 2016. Comprendre les changements d'utilisation des terres en France pour mieux estimer leurs impacts sur les émissions de gaz à effet de serre. De l'observation à la modélisation (Understanding land use changes in France to better estimate their impacts on greenhouse gas emissions. From observation to modeling). Geography. University Paris Denis Diderot, 2016.

Fédération Nationale des Activités de la Pollution et de l'Environnement. January 2015. Guide Methodologique D'aide a ja Declaration Annuelle des Emissions Polluantes et des Dechets A L'attention des Exploitants D'installation de Stockage de Dechets (Methodological Guide for the the Annual Emissions Declaration Pollutants and Waste: To the Attention of the Operators for Solid Waste Disposal Sites). Annex 3. Note pour la Declaration des Emissions Atmospheriques Des Installations de Stockage de Déchets Non Dangereux (Note for the Declaration of Atmospheric Emissions of Solid Waste Disposal Sites. Available online at: https://www.declarationpollution.developpement-durable.gouv.fr/gerep/download/Guide_air_ISDND_indB.pdf.

Guitet S. et al. 2006. Expertise sur les références dendrométriques nécessaires au renseignement de l'inventaire national de gaz à effet de serre pour la forêt guyanaise (Expertise on the references necessary to inform the national inventory of greenhouse gases for the Guyanese forest). Convention n° 59.02. G 18/05 of 19/12/2005 between the Ministry of Agriculture and the National Forest Office.

PCW. 2002. ECOBILAN / ADEME – Bilans énergétiques et gaz à effet de serre des filières de production de biocarburants (Energy balances and greenhouse gas emissions from biofuel production chains). Available at: http://aoatools.aua.gr/pilotec/files/bibliography/ECOBILAN-4247589633/ECOBILAN.pdf.

Robert C. 2016, Comprendre les changements d'utilisation des terres en France pour mieux estimer leurs impacts sur les émissions de gaz à effet de serre. De l'observation à la modélisation. (Understanding land use changes in France to better estimate their impacts on greenhouse gas emissions. From observation to modelling). Doctoral thesis, University of Paris-Diderot. Available at: https://tel.archives-ouvertes.fr/tel-01512608.

Sampère, J. 2017. Mise en place d'un protocole d'estimation des changements d'occupation des sols sur le territoire de France métropolitaine. (Establishment of a protocol for estimating changes in land use in the territory of metropolitan France). Masters thesis. University of Paris-Diderot.

Simpson, D, W. Winiwarter and G. Börjesson *et al.* 1999 Inventorying emissions from nature in Europe. Journal of Geophysical Research: Atmospheres, 104(D7). Available at https://escholarship.org/uc/item/9qv1m5k7.

UNEP. 2019. Refrigeration, Air Conditioning and Heat Pumps. 2018 RTOC Assessment Report. Nairobi: United Nations Environment Programme.