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Report on the individual review of the annual submission of France submitted in 2022*

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 review of the 2022 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 19 to 24 September 2022 in Bonn.

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* In the symbol for this document, 2022 refers to the year in which the inventory was submitted, not to the year of publication.

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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
AQ	accounting quantity
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
Cf_i	coefficient for calculating net energy for maintenance
CH_4	methane
CM	cropland management
Citepa	Technical Reference Centre for Air Pollution and Climate Change
CIV	French Meat Information Centre
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COD	chemical oxygen demand
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"
CPR	commitment period reserve
CRF	common reporting format
dm	dry matter
DOC	degradable organic carbon
DOC_f	fraction of degradable organic carbon that decomposes
DOM	dead organic matter
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
ETS	emissions trading scheme
EU ETS	European Union Emissions Trading System
Eurostat	statistical office of the European Union
FM	forest management
FMRL	forest management reference level
GEREP	French electronic register for pollutant emissions
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 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)
MONDFERENT project	project on methane emissions from cattle in France
N	nitrogen
N_2O	nitrous oxide
NA	not applicable
NE	not estimated
NEU	non-energy use
Nex	nitrogen excretion
NF_3	nitrogen trifluoride
NFI	national forest inventory
NIR	national inventory report
NO	not occurring
OMINEA	organization and methods of national inventories of atmospheric emissions in France
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SF_6	sulfur hexafluoride
SIAR	standard independent assessment report
SOC	soil organic carbon
SOC_{REF}	reference soil organic carbon stocks
SWDS	solid waste disposal site(s)
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.   This report covers the review of the 2022 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" (annex to decision 13/CP.20). The review took place from 19 to 24 September 2022 in Bonn and was coordinated by Javier Hanna Figueroa, Claudia do Valle and Rocio Lichte (secretariat). Table 1 provides information on the composition of the ERT that conducted the review for France.

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

Area of expertise	Name	Party
Generalist	Riccardo De Lauretis	Italy
	Robert Sturgiss	Australia
Energy	Sander Akkermans	Netherlands
	Ulrich Elsenberger	Germany
	Leonidas Osvaldo Girardin	Argentina
	Benon Bibbu Yassin	Malawi
IPPU	Menouer Boughedaoui	Algeria
	Mauro Meirelles de Oliveira Santos	Brazil
	Jacek Skośkiewicz	Poland
	Erhan Unal	Türkiye
Agriculture	Kadir Aksakal	Türkiye
	Paulo Cornejo	Chile
	Yurii Pyrozhenko	Ukraine
LULUCF and KP-LULUCF	Savitri Garivait	Thailand
	Mattias Lundblad	Sweden
	Koki Okawa	Japan
Waste	Maryna Bereznytska	Ukraine
	Hlobsile Sikhosana	Eswatini
Lead reviewers	Menouer Boughedaoui	
	Robert Sturgiss	

2.   The basis of the findings in this report is the assessment by the ERT of the Party's 2022 annual submission in accordance with the UNFCCC review guidelines and the Article 8 review guidelines.

3.   The ERT has made recommendations that France resolve identified findings, including issues[1] designated as problems.[2] Other findings, and, if applicable, the encouragements of the ERT to France to resolve related issues, are also included in this report.

4.   A draft version of this report was communicated to the Government of France, which provided no comments.

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

5.   Annex I presents the annual GHG emissions of France, including totals excluding and including LULUCF, indirect CO_2 emissions, and emissions by gas and by sector, and contains background data on emissions and removals from KP-LULUCF, if elected by the Party, 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 Party's 2022 annual submission

7.   Table 2 provides the assessment by the ERT of the Party's 2022 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 2022 annual submission of France

Assessment			Issue/problem ID#(s) in table 3 or 5[a]
Date of submission	Original submission: NIR, 14 April 2022; CRF tables (Convention, version 1), 12 April 2022; CRF tables (Kyoto Protocol, version 1), 14 April 2022; SEF tables, 12 April 2022		
Review format	Centralized		
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and the 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	E.5, L.13, W.5
	(c) Development and selection of EFs?	Yes	W.10
	(d) Collection and selection of AD?	Yes	E.1, E.6, I.15, I.18, A.2, A.4, L.4, L.8, L.10, W.4
	(e) Reporting of recalculations?	No	
	(f) Reporting of a consistent time series?	No	
	(g) Reporting of uncertainties, including methodologies?	No	
	(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, or completeness?[b]	Yes	I.16, L.11, L.14
	(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.4
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?	No	
	(b) Performance of the national system functions?	No	
	Have any issues been identified related to the national registry:		

Assessment			Issue/problem ID#(s) in table 3 or 5[a]
	(a) Overall functioning of the national registry?	No	
	(b) Performance of the functions of the national registry and the adherence to technical standards for data exchange?	No	
	Have any issues been identified related to the reporting of information on AAUs, CERs, ERUs and RMUs and on discrepancies 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 SIAR?	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 the 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:		
	(a) Reporting requirements of decision 2/CMP.8, annex II, paragraphs 1–5?	No	
	(b) Demonstration of methodological consistency between the reference level and reporting on FM in accordance with decision 2/CMP.7, annex, paragraph 14?	No	
	(c) Reporting requirements of decision 6/CMP.9?	No	
	(d) Country-specific information to support provisions for natural disturbances in accordance with decision 2/CMP.7, annex, paragraphs 33–34?	No	
CPR	Was the CPR reported in accordance with decision 18/CP.7, annex; decision 11/CMP.1, annex; and decision 1/CMP.8, paragraph 18?	Yes	
Adjustments	Has the ERT applied any adjustments under Article 5, paragraph 2, of the Kyoto Protocol?	No	
	Has the Party submitted a revised estimate to replace a previously applied adjustment?	NA	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 assessing 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] Further information on the issues identified, as well as additional findings, may be found in tables 3 and 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 recommendations included in the previous review report

8.   Table 3 compiles the recommendations from previous review reports that were included in the most recent previous review report, published on 16 September 2022,[3] and had not been resolved by the time of publication of the report on the review of the Party's 2021 annual submission. The ERT has specified whether it believes the Party had resolved, was addressing or had not resolved each issue or problem by the time of publication of this review report and has provided the rationale for its determination, which takes into consideration the publication date of the most recent previous review report and national circumstances.

Table 3
Status of implementation of recommendations included in the previous review report for France

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
General			
G.1	EFs (G.2, 2021) (G.9, 2019) Transparency	(a) 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; (b) Either apply units commonly used for reporting under the UNFCCC, consistently with the 2006 IPCC Guidelines (e.g. kg/t, t/t), in the spreadsheet, or include any conversion factors applied.	Resolved. The Party provided with its NIR a file containing the OMINEA database of EFs (BDD_OMINEA_A_EF-d). The Party included in the OMINEA database cross references to the sources of the EFs used in the GHG inventory for the UNFCCC reporting categories and reported EFs in units that are consistent with those in the 2006 IPCC Guidelines. The ERT considers that this recommendation has been fully resolved.
G.2	National registry (G.3, 2021) (G.3, 2019) (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 will be prior to the 2017 annual submission.	Resolved. The Party reported its established previous period surplus reserve in SEF table 4.
G.3	NIR (G.4, 2021) (G.4, 2019) (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 Party provided in its NIR a description of the methodologies (section 1.7, pp.70–77, and related sectoral chapters) and sources of data used for each part of the French metropolitan and overseas territories (section 1.7, pp.67–70, and related sectoral chapters). During the review, the Party clarified that this recommendation has been implemented for all sectors except for the waste sector. The ERT considers that the recommendation has not yet been fully implemented because the required information has not been provided for all sectors.

[3] FCCC/ARR/2021/FRA.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
G.4	Other (G.5, 2021) (G.7, 2019) (G.13, 2017) Convention reporting adherence	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. The Party explained in its NIR (section 1.7, pp.92–93) for all categories and subcategories reported as "NE" the reasons for this reporting, which the ERT considers to be consistent with the requirements for using this notation key. However, the Party did not provide a numerical estimate of the likely level of emissions for any of the categories or subcategories considered to be insignificant. The ERT notes that, for most of these categories and subcategories, either the 2006 IPCC Guidelines do not provide methodological guidance, or the related emissions are not part of the total national GHG emissions. The ERT considers that this recommendation has not been addressed because the Party has not demonstrated through a numerical estimate that those categories and subcategories which are considered to be insignificant, and for which the 2006 IPCC Guidelines provide methodological guidance, comply with the requirements of paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines.
G.5	Uncertainty analysis (G.7, 2021) (G.6, 2019) (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).	Resolved. The Party reported in its NIR (section 1.6, pp.85–88; annex 6, pp.891–896; and throughout the NIR for each category) information on the assumptions used when defining the uncertainty of AD and EFs in line with the 2006 IPCC Guidelines.

Energy

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
E.1	Feedstocks, reductants and other NEU of fuels – solid fuels – CO_2 (E.5, 2021) (E.16, 2019) Comparability	Disaggregate the consumption of the NEU of solid fuels (coking coal and coke oven coke) used for NEU and correctly allocate the consumption of the different fuel types in CRF table 1.A(d).	Addressing. The Party reported separately in CRF table 1.A.(d) consumption of solid fuels, in particular coke oven/gas coke and anthracite, and changed the notation key for coking coal from "IE" to "NO" because all consumption for this fuel is considered to be for energy use, as stated in the NIR (p.141). However, the ERT noted that in CRF table 1.A.(d), the reported quantity for NEU for 2020 is 56,510.23 TJ for anthracite and 77,524.99 TJ for coke oven/gas coke, whereas the reported apparent consumption is 11,725.52 TJ for anthracite and 12,875.63 TJ for coke oven/gas coke according to CRF table 1.A.(b). This results in "negative emissions" for these two fuels in the calculations under the reference approach. During the review, France explained that the reported quantity for NEU of anthracite is an aggregate total for anthracite, coking coal, other bituminous coal and lignite because the CO_2 emissions from NEU reported in the inventory cannot be disaggregated for these fuels. France explained that it could report them separately for the next annual submission, but the CO_2 emissions from NEU would be reported as "IE" for coking coal, other bituminous coal and lignite, while the total CO_2 emissions from NEU for coking coal, other bituminous coal, lignite and anthracite will be reported under anthracite. Further, France stated that it used the final consumption instead of the production of coke oven/gas coke in the calculations under the reference approach. Therefore, the amount of fuel used for NEU in the iron and steel industry (75,389.78

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			TJ) was subtracted from the apparent consumption calculated under the reference approach (12,875.63 TJ), which does not include coke production, resulting in negative consumption and negative emissions. The final consumption of coke oven/gas coke amounts to 64,732,332 TJ for 2020. The ERT considers that the recommendation has not yet been fully resolved because the NEU consumption of solid fuels (anthracite, coking coal, other bituminous coal and lignite) was reported as an aggregate amount under NEU consumption of anthracite and not correctly allocated to the different fuel types in CRF table 1.A(d). The ERT also notes that the information on the NEU consumption of coking coal reported in the NIR (p.141) is not consistent with the information provided during the review.
E.2	International bunkers and multilateral operations – liquid fuels – CO_2, CH_4 and N_2O (E.6, 2021) (E.5, 2019) (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.	Resolved. The Party explained in the NIR (pp.141–143) the reasons for the discrepancies between the sectoral and reference approaches for international aviation and international navigation. During the review, the Party stated that efforts and discussions are ongoing with the National Institute of Statistics and Economic Studies, which is in charge of collecting data for the energy balances compiled by the International Energy Agency, to further improve the comparability of the sectoral and reference approaches for international aviation and international navigation. The ERT commends the Party for these activities.
E.3	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2 (E.8, 2021) (E.19, 2019) Transparency	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.	Resolved. The Party provided in its NIR (table 42, p.151) the country-specific CO_2 EF value for diesel oil and domestic heating oil (74.52 kg/GJ) and included the relevant references to this table in the reference list of the NIR. France explained in detail in the NIR (pp.151–153) the method used to calculate the country-specific CO_2 EF and clarified that the CO_2 EF for diesel oil can also be used for domestic heating oil as both fuels are very similar and have the same carbon content.
E.4	1.C.2 Injection and storage – gaseous fuels – CO_2 (E.20, 2021) (E.29, 2019) Comparability	Report "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 "NO" for the years in which injection was not occurring. In addition, 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 report "NO" for CO_2 emissions from storage for the year prior to injection taking place.	Resolved. The Party reported in CRF table 1.C the correct notation keys for the entire time series for CO_2 emissions for subcategories 1.C.2.a injection and 1.C.2.b storage, as well as relevant information in the documentation box to CRF table 1.C.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
IPPU			
I.1	2.A.2 Lime production – CO_2 (I.5, 2021) (I.22, 2019) Transparency	Include information in the 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 lime producers federation, and the reasons for any change in the CO_2 EF between 2016 and 2017.	Addressing. France reported in its NIR (pp.306–309) information on the share of lime production for the three types of lime produced in France (hydraulic lime, quicklime and lime produced in sugar mills) and on the number of plants operating from 1994 onward. It also included information on the number of plants reporting individual data for estimating emissions and the number of plants for which an average CO_2 EF was applied to estimate emissions. The Party also reported the average EF used for CO_2 emissions from quicklime (air and magnesium lime) for all years in the period 1990–2020, as well as information on AD sources and how data were collected for each type of lime in different periods, either from annual plant reporting (declaration) or directly from plants, including all assumptions used to estimate emissions from lime production by type of lime. During the review, the Party indicated that the reason for the change in the CO_2 EF for quick lime for 2016 and 2017 is the increase in production in one plant during 2015–2017. The ERT considers that the recommendation has not been yet fully addressed, as information on the change in the CO_2 EF between 2016 and 2017 was not included in the NIR.
I.2	2.A.2 Lime production – CO_2 (I.15, 2021) Comparability	Improve the explanation provided in the NIR for the reporting of recovered CO_2 emissions from sugar refineries under category 2.H.2, reporting recovery under 2.A.2 and ensuring there is no double counting of emissions and removals (e.g. by including the information provided during the review) among categories 2.A.2, 2.H.2 and 3.G.	Resolved. The Party reported in its NIR (pp.297–298) information on lime production in sugar mills and reported the share of lime production in sugar mills in the national lime production (NIR, p.310). The Party clearly reported in its NIR (p.468) how CO_2 emissions were estimated for each type of lime. It indicated that the quantity of recovered CO_2 emissions for category 2.H.2 food and beverages industry was reported under category 2.A.2 lime production. The Party also explained how these CO_2 emissions and recovered emissions were accounted for and reported separately under categories 2.A.2 and 2.H.2 in the CRF tables, thereby ensuring no double counting, including for the reporting under category 3.G liming.
I.3	2.A.2 Lime production – CO_2 (I.16, 2021) Transparency	Report the correct shares of lime production in the NIR.	Resolved. France reported in the NIR (pp.306 and 309–310) the correct shares of lime production for the three types of lime produced in France. The ERT noted that the Party reported an update of the share of lime production from sugar mills for 2017 and 2019. France also made recalculations for categories 2.A.2 and 2.H.2 and reported in an annex to the NIR (in a separate Excel file) the recalculations performed owing to updated data since its last annual submission.
I.4	2.B.1 Ammonia production – CO_2 (I.17, 2021) Comparability	Report CO_2 emissions and removals under ammonia production for urea production in CRF table 2(I).A-H (sheet 1) and describe transparently in the NIR how these removals are treated compared with the emissions reported for this category, in particular in reference to CO_2	Resolved. The Party explained in its NIR (pp.325–326) how it treated CO_2 emissions from ammonia production recovered for urea production or liquefied CO_2 production, which are accounted for under urea uses in the agriculture sector and under ammonia production in the IPPU sector, respectively. The ERT noted that France reported the quantities of CO_2 recovery in CRF table 2(I).A-H (sheet 1) for 1990–2020 in line with the 2006 IPCC Guidelines. The ERT also noted that the amount of CO_2 emissions reported for the whole times series under category 2.B.1 ammonia

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
		removals for urea production and CO_2 liquefaction.	production in the 2022 annual submission did not change following the revised reporting of CO_2 recovery compared with the 2021 annual submission and that no recalculations were performed. During the review, the Party clarified that CO_2 recovery (for urea production) was subtracted from CO_2 emissions from ammonia production for the 2021 annual submission but was not reported in the CRF tables, an issue which has been addressed for the 2022 annual submission. The ERT considers that the recommendation has been fully addressed.
I.5	2.B.1 Ammonia production – CO_2 (I.18, 2021) Comparability	Include CO_2 emissions from combustion activities related to ammonia production in the IPPU sector under category 2.B.1 ammonia production in accordance with the 2006 IPCC Guidelines. Report on how it was ensured the times-series consistency of these data and provide information on the recalculations performed as a result of the reallocation of emissions from the energy to the IPPU sector.	Addressing. The Party reported in its NIR (pp.325–327) information on CO_2 emissions from combustion activities related to ammonia production and CO_2 emissions from the ammonia production process. France also reported in its NIR (p.327) a data comparison table for 2013–2020 showing how consistency was ensured between different sources of data for the whole time series and how CO_2 emissions from natural gas used for energy production (combustion) and CO_2 used as feedstock for ammonia production were reported. The ERT noted that no recalculations were performed as no emissions were reallocated from the energy to the IPPU sector. During the review, the Party clarified that it reports emissions to the EU ETS consistently with the emissions reported in its national inventory and provided the ERT with detailed information on the methodologies applied to estimate emissions. The ERT considers that the recommendation has not yet been fully implemented because France still reports emissions from ammonia production separately under the energy and IPPU sectors instead of reporting all emissions from ammonia production (combustion and feedstocks) under the IPPU sector in line with the 2006 IPCC Guidelines.
I.6	2.C.1 Iron and steel production – CO_2 (I.7, 2021) (I.10, 2019) (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 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.	Resolved. The Party reported in its NIR (pp.349–350) information on the revised methodology used to estimate emissions from the use of solid fuels in the iron and steel production process, including confirmation that data on all raw material inputs were considered in the revised methodology. The EU ETS database was used to estimate CO_2 emissions for 2005 onward. For 1990–2004, an EF was derived per type of activity based on the emissions reported under the EU ETS for 2005–2019. France reported in CRF table 2(I).A-H (sheet 2) revised estimates in line with the 2006 IPCC Guidelines and reported on the recalculations performed in the NIR (p.349), including the rationale and the impact on the emissions (reported in an annex to the NIR entitled "Recalculs_d.xlsm"). During the review, the Party clarified how the recommendation was implemented by providing detailed explanations of the methodology applied in order to ensure consistency with the 2006 IPCC Guidelines. France collected data at the plant level for 2005–2020 and from iron and steel industry trade associations for 1990–2004. The AD used in the country-specific model were reported together with CO_2 emission estimates in the CRF tables for the

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			entire time series. The ERT considers that the recommendation has been fully addressed.
I.7	2.C.1 Iron and steel production – CH$_4$ (I.10, 2021) (I.8, 2019) (I.14, 2017) Transparency	Report CH$_4$ emissions from sinter production under iron and steel production.	Not resolved. The Party reported in its NIR (p.351) information on CH$_4$ emissions from sinter production reported under subcategory 2.C.1.a steel, instead of the previous reporting under subcategory 1.A.2.a iron and steel, and included these CH$_4$ emissions in CRF table 2(I).A-H (sheet 2). During the review, the Party clarified that it revised the methodology used in order to allocate CH$_4$ emissions under category 2.C.1 iron and steel production. The ERT noted that France reported in an aggregated manner all CH$_4$ emissions under subcategory 2.C.1.a steel, and reported CH$_4$ emissions for subcategories 2.C.1.b pig iron and 2.C.1.d sinter as "IE" instead of disaggregating them by subcategory in line with the 2006 IPCC Guidelines. The ERT considers that the recommendation has not been addressed.
I.8	2.F.1 Refrigeration and air conditioning – HFCs (I.19, 2021) Convention reporting adherence	Revise the calculations and report the correct values in CRF table 2(II).B-H (sheet 2).	Resolved. The Party corrected and updated the relevant data, revised the calculations of HFC emissions for subcategory 2.F.1.c industrial refrigeration for the entire time series, as reported in the recalculation file entitled "Recalculs_d.xlsm", and reported the revised estimates in CRF tables 2(II).B-H (sheet 2). The ERT noted that France reported in the NIR (pp.453–454) information on recalculations performed for category 2.F.1 and described the improvements and changes made to enhance transparency and accuracy of the emission estimates. Recalculations performed for subcategory 2.F.1.c led to a decrease in the estimate of HFC emissions by 22.6 per cent for 2019 and to an overall decrease of 8.2 per cent for category 2.F product uses as substitutes for ozone-depleting substances for the same year. During the review, the Party clarified that it improved its QC procedures and developed an EF outlier tool as part of the improvements to its QC system.
I.9	2.G.1 Electrical equipment – SF$_6$ (I.13, 2021) (I.24, 2019) Transparency	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.	Addressing. The Party did not report information in the NIR on the peak of SF$_6$ emissions from disposal and remaining in products identified previously for 2016 or on verification of the time series between 2015 and 2017. During the review, the Party clarified that SF$_6$ emissions associated with disposal depend on the amount of SF$_6$ recovered each year, which fluctuate between years. In 2016, there was an increase in SF$_6$ emissions from disposal owing to a larger quantity of SF$_6$ recovered, while in 2020 there was a decrease owing to a lower quantity of SF$_6$ recovered. The ERT considers that the recommendation has not yet been fully implemented because although the Party has revised and updated the data on SF$_6$ stocks for 2011–2018 and reported in the CRF tables the revised values, it has not reported in the NIR all related background information on verification of the time series or on the peak of SF$_6$ emissions from disposal and remaining in products for 2016.
I.10	2.G.1 Electrical equipment – SF$_6$	Include in the NIR the clarification provided during the review on the findings of the planned	Resolved. The ERT noted that France did not report in the NIR on the findings of the previously planned survey to verify the SF$_6$ stocks of electrical equipment. During the review, the Party clarified that the SF$_6$ emission estimates for category 2.G.1

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
	(I.20, 2021) Transparency	survey to be performed in the near future aimed to verify the stocks of electrical equipment.	electrical equipment are based on bottom-up data received from companies. France conducts an annual analysis of the consistency between the values of installed stocks and emissions by comparing the national IEFs with those of other European Union member States. The ERT considers that the recommendation has been implemented because the Party carries out an annual analysis of consistency between values of installed stocks and emissions to verify the data, in addition to the fact that emissions data are obtained from reports submitted by companies. The ERT considers that this approach is more accurate and reliable than conducting a survey (as previously planned by the Party) to verify the stocks of electrical equipment.
I.11	2.G.1 Electrical equipment – SF_6 (I.20, 2021) Consistency	Revise, if necessary, the AD time series and report transparently any resulting recalculations of SF_6 emissions.	Resolved. The Party indicated in the NIR (pp.456 and 458–459) that it reported in CRF table 2(II).B-H (sheet 2) revised and updated data on SF_6 stocks, ensuring time-series consistency of the quantities of SF_6 in annual operating stocks for 2010–2019 (see ID# I.13 below). The ERT noted that France performed a recalculation of SF_6 emissions for 2019 in order to include in the estimates some missing SF_6 emissions from the national high-voltage grid, which led to an increase in the emission estimate of 5 kt CO_2 eq (0.0013 per cent of national total emissions) for category 2.G.1 electrical equipment. The Party provided transparent information on this recalculation in the NIR (pp.462–463).
I.12	2.G.1 Electrical equipment – SF_6 (I.20, 2021) Convention reporting adherence	Conduct a more thorough QC procedure on reported AD for new fillings and stock and related emissions (from manufacturing, operation and end of life) to ensure consistency in the values reported.	Resolved. The Party reported in its NIR (p.458) that it made revisions to the data on SF_6 stocks, which were reflected in the CRF tables. To ensure consistency, France reported that it performed checks of new fillings on the basis of data provided by the ADEME refrigerants observatory, which collects information on an annual basis from manufacturers via the online portal of the system for the submission of extended producer responsibility reports (known as SYDEREP). The Party reported in the NIR (p.462) that Citepa conducts QC procedures and checks each year if there are new industrial sites emitting SF_6 on the basis of the national registry of fluorinated gases (compiled from annual declarations submitted by operators) to ensure that all sources of emissions are accounted for. During the review, the Party clarified that there is only one plant producing regenerated SF_6 from recycled SF_6 in France, and that it takes time to conduct data checks because of confidentiality reasons. The ERT considers that the recommendation has been addressed.
I.13	2.G.1 Electrical equipment – SF_6 (I.21, 2021) Consistency	Investigate in greater detail the decline in stocks reported for 2010–2011, report the outcome of this investigation in the NIR and revise the SF_6 estimates, if this is necessary, ensuring time-series consistency.	Resolved. The Party investigated the decline in SF_6 stocks for 2010–2011, corrected these stock values (NIR, p.466) and ensured consistency of the SF_6 estimates for the entire time series. France reported in its NIR (p.463) and in CRF table 2(II).B-H (sheet 2) information on the revised estimates of SF_6 stocks for 2010–2019. The ERT noted that the revised data on SF_6 stocks (1,035.66 t for 2010 and 1,058.81 t for 2011) resolved the issue identified in the previous review report for 2010–2011. The ERT also noted that SF_6 emissions for category 2.G.1 electrical equipment were not affected by the revised estimates of SF_6 stocks and no recalculation was performed.

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			During the review, the Party clarified that the corrections to the estimates of SF_6 stocks impacted the AD only and had no impact on SF_6 emissions, as the emissions are not calculated on the basis of the AD.
I.14	2.G.4 Other (other product manufacture and use) – CO_2 (I.14, 2021) (I.25, 2019) Accuracy	Ensure that all CO_2 emissions from decarbonization that are reported under subcategory 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.	Resolved. The Party reported in its NIR (pp.457–458) information on the sources of CO_2 emissions included under category 2.G.4 other – other product use and manufacture (emissions from flue gas desulfurization). The ERT noted that the Party reported CO_2 emissions as "NO" in CRF table 2(II).B-H (sheet 1) for subcategory 2.A.4.d other for 2010–2020. The ERT also noted that France reported in the NIR (pp.312–313) on the closure in 2010 of the last enamel plant operating in the country for which CO_2 emissions were reported until 2010 under subcategory 2.A.4.d other. During the review, the Party confirmed that all CO_2 emissions from decarbonization (flue gas desulfurization) were reported under category 2.G.4. The ERT considers that the issue has been resolved as France ensured that all CO_2 emissions from decarbonization that were reported under subcategory 2.A.4.d other process uses of carbonates for the 2017 annual submission continue to be reported in category 2.G.4 other – other product use or elsewhere under relevant subcategories in the IPPU sector.
I.15	2.G.4 Other (other product manufacture and use) – HFCs (I.22, 2021) Comparability	Consistently report information related to HFC emissions for this activity under category 2.G.4 other by including AD and IEFs, including detailed background information in the NIR.	Not resolved. France reported disaggregated emissions of HFC-245fa and HFC-365mfc from organic Rankine cycle systems operating in France for 2012–2020 under category 2.G.4 other, but did not report in CRF table 2(II).B-H (sheet 2) the AD and corresponding IEFs for emissions of HFC-245fa and HFC-365mfc from stocks of organic Rankine cycle equipment. The ERT noted that the AD and corresponding IEFs are still reported as "NO" in CRF table 2(II).B-H (sheet 2). The ERT also noted that the Party did not include in the NIR detailed background information, as requested in the recommendation. During the review, the Party clarified that it will report AD and emissions separately by gas (HFC-245fa and HFC-365mfc) in its next annual submission. The ERT considers that the recommendation has not yet been addressed because the Party has not yet reported either in the NIR or in the CRF tables information on the AD and IEFs for stocks of organic Rankine cycle equipment and did not include in the NIR detailed background information on the number and capacity of organic Rankine cycle equipment installed in France and other related information (see ID# I.18 in table 5).
Agriculture			
A.1	3.A.1 Cattle – CH_4 (A.8, 2021) Transparency	In the NIR analyse and discuss in detail the low energy intake values in the French model and justify the variation in the data collected by Devun et al. (2015), their representativeness for French	Not resolved. The Party reported in its NIR (section 5.2.2, pp.511–513) the equations and parameters used to estimate the EFs used in calculations on the basis of a country-specific method. The different values of those parameters (e.g. live weight, milk yield, composition of grass forages and their metabolizable energy content) are the drivers of the differences in the EFs between cattle subcategories. As justification of the representativeness of feed data for French cattle farming conditions, the Party included

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	cattle farming conditions, and the quality of feed and its conversion into metabolized energy.		in the NIR (section 5.2.2, p.511) an extract from the publication "Alimentation des bovins: rations moyennes et autonomie alimentaire" ("Cattle feeding: average rations and feed autonomy") (CIV, 2012). However, it was unclear from this extract whether both large- and small-scale farms were covered in the study undertaken for this publication. During the review, the ERT asked the Party whether the live weight and diet of cattle are representative of both large-scale commercial farms and small farms/households and whether seasonal changes in diet are considered. The Party indicated that the information on live weight of cattle presented in table 97 of the NIR (p.511) is taken from the MONDFERENT project, which indicates that the live weight data developed by the National Research Institute for Agriculture, Food and the Environment are representative of the national farming conditions. As regards diet, the Party replied that data on feeding rations are collected from livestock networks and tracked in a dedicated database (Diapason) for the whole year, and seasonal changes in diet structure are therefore considered. Further, based on the 2012 publication by CIV that was mentioned above, although the size of the farms covered is often above average, feeding practices are still representative of relevant regions. On the basis of the responses provided by the Party, the ERT considers that the representativeness of the data on live weight and feed for French cattle farming conditions has been justified and there is no potential underestimation of emissions in that respect. However, the ERT considers that the recommendation has not yet been addressed because the Party has not analysed and discussed in detail in the NIR (table 104, p.523) the low energy intake values (up to 52 per cent) for most cattle subcategories when using the country-specific method compared with the IPCC tier 2 method, the variation in the data collected by Devun et al. (2015), and the quality of feed and its conversion into metabolized energy.
A.2	3.B Manure management – CH_4 and N_2O (A.3, 2021) (A.19, 2019) Accuracy	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.	Not resolved. The ERT noted that data-collection efforts allowing for the separate reporting of data on the allocation of composted manure and the methane conversion factor, Nex and N_2O EF have not been undertaken by the Party, as it did not report separately data and emissions related to composting. The ERT further noted that no information was provided in the NIR or in the CRF tables on the allocation of composted manure. During the review, the Party indicated that there is still little information on manure composting in France and, as such, it will not be feasible for the Party to report separately data and emissions related to composting, at least in the near future. France also clarified that composting is accounted for under solid storage and possibly some other systems. The ERT is of the view that such an approach to the allocation of composting MMS is not in line with the definitions of MMS provided in the 2006 IPCC Guidelines (vol. 4, chap. 10, table 10.18, p.10.49). The ERT considers that the recommendation has not yet been addressed because the Party has not collected data related to composting of manure or estimated and reported the related CH_4 and N_2O emissions separately from other MMS; however, the ERT

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			concluded that although this issue has not been resolved, it does not represent an underestimation of emissions as composting is mainly accounted for under solid storage.

LULUCF

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
L.1	4. General (LULUCF) – CO_2, CH_4 and N_2O (L.3, 2021) (L.4, 2019) (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: (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.	The Party reported in the NIR information on data sources, assumptions and methodologies used, in particular: (k) Resolved. France provided detailed information on wildfires, disaggregated by land use and region, for the complete time series in an annex to the NIR (LULUCF_Background-d.xlsm). During the review, France clarified that only forest fires qualify as natural disturbances in the GHG inventory, and that data cannot be further disaggregated to the level of forest types with the information currently available. The ERT notes that, since mortality due to other natural disturbances is taken into account in the calculations of biomass carbon loss, the current methodology adequately captures the impact of natural disturbances in France on the basis of the data available; (l) Resolved. France provided detailed information on and data sources for HWP for the complete time series in an annex to the NIR (LULUCF_Background-d.xlsm). During the review, the Party clarified that HWP are estimated using economic statistics available at the national level, and that the HWP are assumed to originate only from forest land remaining forest land. For overseas territories, the ERT noted from the information provided in the NIR (section 6.10.1, table 201, p.707) that the Party did not estimate HWP and did not include in the NIR the reason for that assumption (instantaneous oxidation), which is identified as a separate issue by the ERT (see ID# L.19 in table 5). Nevertheless, the ERT considers that this element of the recommendation has been addressed, as the original issue identified is no longer relevant; (q) Resolved. France provided in the NIR (section 6.4.2, pp.637–643) information on EFs for forest land related to the methodology applied for and timing of data collection, including figure 164 (p.638) showing information on the assumptions made and equations 6 and 7 used in the estimation of the EFs (pp.640 and 642). The associated net increment rates used for developing the EFs were also provided in the NIR (tables 173 and 174, pp.641–642), using 2007 as an example. In order to demonstrate the method applied for developing EFs from rough data, the Party provided in the NIR (p.640) an additional figure showing the five-year NFI campaigns from which data were used for the inventory and the explanation of the change in inventory methods since 2005. The ERT notes that the required information on EFs clarifying the timing of and methodology applied for data collection for the inventory was reported by the Party with increased transparency.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			The ERT considers that this element of the recommendation has been fully addressed.
L.2	4. General (LULUCF) – CO_2 and N_2O (L.5, 2021) (L.8, 2019) (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.	Resolved. France provided in the NIR (section 6.3.1, p.620) the SOC values and SOC change factors for forests and other land uses, including those for overseas territories, used for the inventory. During the review, France clarified that IPCC default values are used when no country-specific values are available; namely, the SOC_{REF} for forest is based on country-specific values, while the SOC values for other categories are based on IPCC default values or on specific hypotheses in cases where the default values are not relevant. The ERT did not identify any issues with the accuracy of the estimates.
L.3	4. General (LULUCF) – CO_2 and N_2O (L.6, 2021) (L.30, 2019) Transparency	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.	Addressing. France provided in the NIR (section 6.4, p.634) methodological descriptions, information on assumptions and all soil carbon parameters for forest land (p.620) used for calculating emissions and removals in mineral soils for the overseas territories. However, that information was not provided for all land-use categories converted to forest land in the NIR (sections 6.5–6.9). During the review, the Party indicated that it did not implement the improvement to the reporting in the NIR for all land-use categories. The ERT therefore considers that the recommendation has not yet been fully addressed.
L.4	Land representation – CO_2 and N_2O (L.7, 2021) (L.12, 2019) (L.33, 2017) Accuracy	Identify land representation of cropland accurately in order to report emissions and removals taking into account the 20-year transition period for land conversions. In doing so, depending on available resources, consider (1) improving the 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).	Not resolved. The Party indicated in the NIR (p.626) that this issue has not yet been addressed. However, during the review, the Party also indicated that the new land-use monitoring approach to be implemented for the 2023 annual submission will allow direct linking between land-use and soil information through enhanced use of spatial features from the TERUTI-LUCAS survey.
L.5	4.A Forest land – CO_2 (L.9, 2021) (L.14,	Provide more transparent information regarding the integration between TERUTI and the NFI data,	Resolved. Although France did not provide in its NIR the per cent coverage of the sampled data for TERUTI and NFI purposes and an explanation for the changes in

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	2019) (L.12, 2017) (L.9, 2016) (L.9, 2015) (91, 2014) Transparency	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.	the nomenclature of TERUTI, the ERT notes that the NIR (p.628) has improved and includes transparent information on the integration between TERUTI and the NFI data. The NIR (section 6.3.1, p.604) also includes information on the construction of a database on the functional use of the territory and the historical changes in the three distinct available statistical series of TERUTI campaigns. Table 149 of the NIR (p.606) includes information on the correspondence between TERUTI codes and the IPCC nomenclature. The Party also included in the NIR (section 6.3.4, p.628), under the information on uncertainty, information on the methodological evolution of the definition of sampling parameters and a discussion of the resulting overall uncertainties of land-use areas and areas of land-use changes based on the integration between TERUTI and NFI data. Since the original recommendation in the 2014 annual review report was made with a view to TERUTI providing the relevant annual data for updating the land-use matrix and using the NFI data to estimate emissions and removals, the ERT acknowledges that the aim of the recommendation in terms of providing transparent information has been met by the improvements made to the NIR since 2014.
L.6	4.A Forest land – CO$_2$ (L.10, 2021) (L.15, 2019) (L.13, 2017) (L.11, 2016) (L.11, 2015) (95, 2014) (90, 2013) Transparency	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. The Party provided an explanation in its NIR (p.604) for the use of both the TERUTI areas data set and NFI data sets on carbon stocks and carbon stock changes in its inventory. However, the Party did not 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. During the review, the Party explained that data sets are difficult to compare owing to differences in definitions (nomenclature), time periods covered and spatial resolution.
L.7	4.A Forest land – CO$_2$ (L.12, 2021) (L.33, 2019) Accuracy	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.	Resolved. France explained in the NIR (pp.643–644) that it calculated forest biomass carbon stock variation in French Guiana using a tier 2 approach taking into account the harvesting zones and a single specific regeneration growth factor (1.75 t C/ha/year). During the review, France explained that the forest land area in French Guiana is stratified according to the history of harvest using two levels of management: one for protected areas with no harvest, where gross fluxes (growth and mortality) are assumed to be in equilibrium; and the other for managed areas with harvest and a specific growth rate. Within the managed areas, growth rate factors are not differentiated by management intensity owing to a lack of data, which the Party justifies by the fact that wood harvest in French Guiana is very low, representing around 0.2 per cent of the national total wood harvest covering one third of the national area of forest. The ERT notes that the explanation provided and the approach taken by the Party are acceptable for resolving this issue and indicate that the issue may have only an insignificant impact on accuracy. The ERT also notes that, taking into account the national circumstances, the effort required to address the issue in the manner requested in the recommendation would be disproportionate in comparison

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			with a further improvement in the accuracy of the estimates. The ERT therefore considers that the recommendation has been addressed.
L.8	4.B.1 Cropland remaining cropland – CO_2 (L.13, 2021) (L.35, 2019) Accuracy	Distinguish between perennial and annual crops in the area data for the overseas territories, using, in the absence of country-specific information, default carbon stock change factors from the 2006 IPCC Guidelines (vol. 4, tables 5.1–5.3).	Not resolved. France reported in the NIR (section 6.3.1, p.615) that a carbon stock change factor of 10 t C/ha was used for all crops in the overseas territories, except for Reunion, where the forest biomass stock value is very low (5 t C/ha), and that the estimated value for stocks outside forest land is 0 t C/ha. The ERT noted that perennial and annual crop areas are not distinguished for overseas territories. During the review, the Party clarified that it has not yet addressed this issue because perennial and annual crop areas are not distinguished in data available for overseas territories. However, in the next few years, it plans to develop a new spatially explicit approach for monitoring land-use change that distinguishes between annual and perennial cropland (and between vineyards and other perennial crops). This approach, which has been tested in mainland France, will be applied for the overseas territories, and for fruit trees in particular. Further information on the new approach will be reported in the 2023 annual submission.
L.9	4.B.2 Land converted to cropland – CO_2 (L.15, 2021) (L.18, 2019) (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.	Resolved. The Party reported in the NIR (section 6.5.2.2, p.677) that the reference carbon stocks for perennial crops such as vineyards and orchards were used to estimate CO_2 emissions and removals from land converted to cropland. The ERT notes that the Party applied the tier 1 method with default coefficients from the IPCC good practice guidance for LULUCF (chap. 3, section 3.3.2.1.1, pp.3.84–3.86) to estimate the net CO_2 emissions and removals from land converted to perennial crops. The ERT considers that this approach is consistent with the 2006 IPCC Guidelines.
L.10	4.B.2 Land converted to cropland – CO_2 (L.16, 2021) (L.37, 2019) Comparability	Include the net losses due to the conversion from forest land to cropland in CRF table 4.B under losses and use the notation key "IE" for gains in the carbon stock change for living biomass per area to indicate that the gains are inherently part of the losses.	Not resolved. The Party did not include the net losses due to the conversion from forest land to cropland in CRF table 4.B under losses (i.e. by reporting gains in the carbon stock change for living biomass as "IE"). During the review, the Party indicated that the related improvement is planned for the next annual submission, for which different types of biomass will be tracked, and gains and losses explicitly recorded.
L.11	Cropland converted to other land uses – CO_2 (L.17, 2021) (L.19, 2019) (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).	Not resolved. France provided in the NIR (p.615) information on the carbon stock for non-forest biomass, including for the overseas territories, but estimates of biomass losses for perennial cropland converted to wetlands and other land uses were not provided in the CRF tables. The Party also indicated in the NIR (p.627) that this issue has not yet been addressed. During the review, the Party explained that the related improvement is planned for the next annual submission, for which different types of biomass will be tracked, and gains and losses explicitly recorded.
L.12	4.C Grassland – CO_2 and N_2O	Applying at least the tier 1 IPCC method, report estimates of biomass and soil carbon stock	Resolved. France reported in CRF tables 4.C and 4(III) estimates of biomass and soil carbon stock changes and associated CO_2 and N_2O emissions for grassland remaining

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
	(L.20, 2021) (L.22, 2019) (L.25, 2017) (L.30, 2016) (L.30, 2015) Completeness	changes, and associated CO_2 and N_2O emissions, for: (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.	grassland and land converted to grassland, as recommended, together with a description in the NIR (pp.685–690) of the methodology used.
L.13	4.D Wetlands – CO_2 and N_2O (L.22, 2021) (L.23, 2019) (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.	Not resolved. In the NIR (section 6.7, p.692) France did not report information to demonstrate that the methodology used to estimate carbon stock changes in land converted from and to wetlands produces more accurate estimates than the IPCC methodology. Additionally, France did not apply the IPCC methodology for estimating GHG emissions and removals from drained and rewetted organic soils. The Party reported in the NIR (section 6.7.2.2, p.696) that, owing to difficulties in characterizing wetland soils, soil carbon fluxes on land converted to wetlands were neglected and not estimated. During the review, the Party explained that its current land-use monitoring approach does not allow for accurate tracking of changes in organic soils for wetlands, but that this might improve with the upcoming new spatially explicit system that the Party is planning to implement in the future.
L.14	4.F.2 Land converted to other land – CO_2 and N_2O (L.23, 2021) (L.25, 2019) (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. The ERT noted that no SOC changes were estimated or reported for conversions of cropland, grassland, wetlands and settlements to other land (reported as "NO, NA" in CRF table 4.F). The ERT further noted that, according to the methods in the 2006 IPCC Guidelines, it is necessary to report biomass and SOC losses and the associated CO_2 and N_2O emissions in cropland and grassland converted to other land, and SOC losses and the associated CO_2 and N_2O emissions in wetlands and settlements converted to other land. During the review, the Party explained that although its current land-use monitoring indicates a large number of land-use changes to other land, these changes are considered to lead to insignificant carbon losses as the low carbon stocks of the other land are a result of its natural situation, rather than as a result of conversions. Carbon stock changes were therefore not estimated. The Party also clarified that SOC losses and the associated CO_2 and N_2O emissions from conversions of cropland, grassland, wetlands and settlements to other land will be estimated for the next annual submission applying a new land-use monitoring approach.
L.15	4.G HWP – CO_2 (L.24, 2021) (L.39, 2019) Transparency	Provide information in the NIR on the HWP in SWDS, namely whether the emissions and removals are significant; if they are insignificant, "NE" can be reported, but if they are significant,	Not resolved. The ERT noted that France did not provide information in the NIR on the significance of CO_2 emissions and removals for HWP stored in SWDS and continued to report them as "NE" in CRF table 4.G (sheet 1) under approach B. During the review, the Party clarified that it is not planning to address this issue yet.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
		AD should be collected and tier 1 data, consistent with the waste sector data, used for calculating the estimates.	
L.16	4(I) Direct N$_2$O emissions from N input to managed soils – N$_2$O (L.25, 2021) (L.40, 2019) Transparency	Estimate N$_2$O emissions from N fertilization on 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. In addition, ensure that the description of the use of the notation keys in the NIR matches their actual use in the CRF tables.	Addressing. The ERT noted that France did not estimate N$_2$O emissions from N fertilization on forest land and reported these emissions as "NO" in CRF table 4(I), but provided related information in the NIR (section 6.6.2, p.685) indicating that these emissions are reported under the agriculture sector. The Party did not indicate in the documentation box to CRF table 4(I) where these emissions were reported. During the review, the Party confirmed it continued to report "NO" in CRF table 4(I) because N fertilization on forest land in France is assumed to be non-existent or to occur only at a very low level, and all fertilization is assumed to be for agricultural use and is therefore included in the estimates for that sector. Although the emissions are still reported as "NE" in the NIR (table 144, p.597), the Party indicated that this will be corrected for the next annual submission. The ERT acknowledges the assumption that fertilizer use is non-existent or occurs only at a very low level on forest land in France and that the N$_2$O emission estimates for N fertilization are included under the agriculture sector. Nevertheless, the ERT considers that the recommendation has not yet been fully addressed.
L.17	4(III) Direct N$_2$O emissions from N mineralization/immobilization – N$_2$O (L.26, 2021) (L.41, 2019) Completeness	Provide in CRF table 4(III) and in the NIR estimates for N$_2$O emissions due to mineralization associated with carbon stock changes in soils on grassland remaining grassland using the carbon stock changes reported in CRF table 4.C.	Resolved. The Party reported estimates of N$_2$O emissions due to mineralization associated with carbon stock changes in soils on grassland remaining grassland in CRF table 4(III) and in the NIR, using the notation key "NE" for some years of the time series. During the review, the Party explained that N$_2$O emissions from grassland remaining grassland due to mineralization do not occur for all years of the time series and that these emissions were estimated only for years when mineral soils on grassland remaining grassland were a source of CO$_2$ emissions.
Waste			
W.1	5. General (waste) – CH$_4$ (W.2, 2021) (W.2, 2019) (W.13, 2017) Transparency	Include in chapter 7.1 of the NIR an overview of all waste generated and the extent to which it is recycled, incinerated, landfilled or treated otherwise (including waste types specified in the 2006 IPCC Guidelines, vol. 5, chap. 3.5 and ensuring the inclusion of waste that is considered inert).	Addressing. The Party reported in its NIR (pp.716–719) an overview of the amount and type of waste generated in mainland France and the overseas territories for 2016 and 2018, respectively, and the extent to which it is recycled, incinerated, landfilled or otherwise treated, including waste that is considered inert. This information did not strictly follow the waste types specified in the 2006 IPCC Guidelines, vol. 5, chap. 3.5. The Party did not provide information on the overview of all waste generated for 2020. The information provided in the NIR (p.717) indicates that ADEME conducts a survey every two years of all ITOM operators in the country that manage waste; however, the latest survey published in 2020 contains data for 2018. During the review, the Party clarified that updated information for 2020 on the overview of all waste generated and the extent to which it is recycled, incinerated, landfilled or

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			treated otherwise will be provided in the next annual submission. The ERT considers that the recommendation has not yet been fully addressed.
W.2	5.A Solid waste disposal on land – CH_4 (W.4, 2021) (W.3, 2019), (W.2, 2017) (W.10, 2016) (W.10, 2015) (117, 2014) 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.	Resolved. The Party reported in the NIR (table 224, p.729) waste composition values for 1950, 1960, 1970, 1980, 1990, 1995, 2000, 2005 and 2010–2020. In addition, the Party provided information and explanations in the NIR (p.726) on the allocation of the ITOM categories to the degradation categories used for estimating emissions from the waste sector, as required in the 2006 IPCC Guidelines. In the NIR (p.726), France clarified that the allocation to the IPCC categories was informed by national household and similar waste characterization surveys (known as MODECOM) conducted in 1993, 2007 and 2017, characterization surveys of industrial waste, and biennial surveys of ITOM operators carried out by ADEME. The Party also provided in the NIR (p.729) a summary of the share of degradation categories in relation to the total waste landfilled for 1950, 1960, 1970, 1980, 1990, 1995, 2000, 2005 and 2010–2020.
W.3	5.A Solid waste disposal on land – CH_4 (W.6, 2021) (W.6, 2019) (W.7, 2017) (W.21, 2016) (W.21, 2015) Comparability	Report the correct value used for DOC_f in the CRF tables.	Not resolved. The Party reported in the documentation box to CRF table 5.A that DOC is reported in this table instead of DOC_f. The ERT notes that CRF table 5.A requires DOC_f to be reported as a percentage; however, the Party continues to report a value of 0.14 in CRF table 5.A.
W.4	5.A.1 Managed waste disposal sites – CH_4 (W.14, 2021) Accuracy	Improve the overall monitoring of data on CH_4 recovery from SWDS to ensure that the requirements on quantification of energy recovery in the 2006 IPCC Guidelines (vol. 5, chap. 6, p.3.19) are met, and report in the NIR the improvements made.	Addressing. The Party reported in its NIR (p.731) the process followed for verifying data on CH_4 capture and recovery received from operators of SWDS. According to information provided by the Party in the NIR (p.731), this process was initiated in 2021 and has provided insights into the operators, which reported CH_4 content of recovered gas by "calculation". The data show that values for 15 sites are missing and, according to preliminary results, although the operators reported the estimated CH_4 content as calculated, in most cases such calculations were actually based on measurements or calculated averages of measurements. During the review, the Party reported that further consultations with the operators of the remaining 15 sites are ongoing with the aim of verifying the reported data on CH_4 recovery and improving the reporting process. All the details of the survey results will be reported in the NIR of the next annual submission. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet completed the process of monitoring and quantifying CH_4 recovery from SWDS.
W.5	5.A.1 Managed waste disposal sites – CH_4	Carry out the following short-term consolidation or improvement activities and report in the NIR on	The ERT noted that the following activities have been carried out regarding the elements in the recommendation:

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
	(W.14, 2021) Accuracy	progress in carrying out each of these short-term activities:	(a) Addressing. The Party reported in its NIR (p.731) that it has initiated a survey of SWDS declaring biogas recovery to verify and consolidate declared data on GEREP. During the review, the Party informed the ERT that it initiated the process only in 2022;
		(a) Survey SWDS declaring biogas recovery to consolidate the data declared on the GEREP platform;	
		(b) Clarify and document the calculation method used by each SWDS, including, for example, a list of SWDS whose CH_4 recovery is reported to be calculated, along with the related calculation methods and a justification for the inclusion of these calculations in the quantification of CH_4 recovery at SWDS;	(b) Not resolved. The Party did not clarify and document the calculation method used by each SWDS in the NIR, as it started the process of clarifying and documenting the calculation methods used by SWDS whose CH_4 recovery is reported to be calculated only in 2021. During the review, the Party informed the ERT that those SWDS operators which declared that they had applied a "calculation" approach for the flow and/or the CH_4 content of the recovered or flared biogas were contacted and, as a result, all SWDS operators explained that the "calculation" approach means the use of average values of measurements;
		(c) Identify those SWDS whose calculation approach is not based on relevant methods consistent with the 2006 IPCC Guidelines and remove their recovery data from the national inventory or justify the inclusion of these data, demonstrating the use of substantiated assumptions.	(c) Not resolved. The Party did not report in the NIR results of the survey of SWDS declaring biogas recovery recently initiated, or on the identification of SWDS operators by the approaches used to estimate recovery data, or on the assessment of the methods used for consistency with the 2006 IPCC Guidelines. During the review, the Party indicated that according to preliminary information from the survey the "calculation" approach means the use of average values of measurements for the flow and/or the CH_4 content of the recovered or flared biogas. The ERT concluded that although this issue has not been resolved, it does not represent an underestimation of emissions, as the Party used official data from GEREP for its calculations, which is consistent with the 2006 IPCC Guidelines.
W.6	5.A.1 Managed waste disposal sites – CH_4 (W.15, 2021) Transparency	Report in the NIR on the results of a comparison of CH_4 for energy recovery estimates reported in the CRF table 5.A and Eurostat data (or data from another independent source) as a verification procedure, including any consequent improvement measures that may be necessary to ensure the accuracy of the inventory.	Not resolved. The Party did not report in its NIR any results of a comparison of CH_4 estimates for energy recovery reported in CRF table 5.A and Eurostat data or any improvement measures that may be necessary to ensure the accuracy of the inventory. The Party reported in its NIR (p.736) that it will initiate discussions with the services of the relevant ministry in order to undertake the comparison. During the review, the Party confirmed that the information provided in the NIR is correct. The ERT considers that the recommendation has not been implemented.
W.7	5.B.1 Composting – CH_4 and N_2O (W.16, 2021) Transparency	Specify in the NIR all EFs, parameters (noting that while the assumption for moisture content does not affect emissions, it does affect the IEFs, and to facilitate comparisons with other Parties, it is important to specify in the NIR the assumptions used for moisture content in the various types of waste), AD and assumptions used to quantify emissions from composting.	Resolved. The Party reported in its NIR (pp.739–740) information on all EFs, parameters, AD and assumptions used for estimating CH_4 emissions from composting. The Party also included in the NIR (p.740) information on the moisture content for different waste types.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
W.8	5.B.1 Composting – CH_4 and N_2O (W.16, 2021) Transparency	Clearly specify which data are taken from national statistics (total amount of waste composted) and what is assumed or considered (e.g. percentage of actively and passively aerated installations; composition of waste composted; amount and composition of waste composted at home).	Resolved. The Party reported in its NIR (p.738) the AD used to estimate CH_4 and N_2O emissions from composting and identified which data were sourced from its national statistics and which were from a specific data source (ITOM operators). The Party also clarified in the NIR (pp.739–740) the data assumptions used for estimating emissions based on the ventilation mode used in the facilities (closed and open air) and the breakdown of the EFs depending on the aeration mode, which the Party sourced from a study conducted by ADEME in March 2007.
W.9	5.B.2 Anaerobic digestion at biogas facilities – CH_4 (W.17, 2021) Transparency	Clearly report in the NIR all assumptions and data used to quantify CH_4 emissions from anaerobic digestion at biogas facilities, in particular AD, biogas generation for each type of waste, CH_4 concentration in biogas, density of CH_4 and leakage rate.	Resolved. The Party reported in its NIR (pp.738–740 and 742) the AD used to quantify CH_4 emissions from anaerobic digestion at biogas facilities and the assumptions used for estimating these CH_4 emissions.
W.10	5.D.1 Domestic wastewater – CH_4 (W.12, 2021) (W.13, 2019) (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.	Not resolved. The Party reported in its NIR (p.761) and in CRF table summary 3 (sheet 2) that it used IPCC default values for B_o and the MCF for estimating CH_4 emissions from domestic wastewater. The ERT notes that CH_4 emissions from domestic wastewater were identified as a key category, both in the level and trend assessments. The ERT also notes that the 2006 IPCC Guidelines provide guidance in a decision tree (vol. 5, chap. 6, figure 6.2, p.6.10) regarding the choice of values for B_o and the MCF, which the Party did not follow for its calculations. During the review, the Party clarified that there are currently no country-specific data available for the MCF and B_o and it is in the process of developing the values. The ERT notes that the use of IPCC default values for B_o and the MCF does not lead to an underestimation of emissions.
W.11	5.D.2 Industrial wastewater – CH_4 (W.13, 2021) (W.14, 2019) (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.	Addressing. The ERT noted that the Party did not provide in the NIR clear information on AD and detailed information on the industries considered in the calculation of CH_4 emissions from industrial wastewater and the amounts of wastewater discharged by each of those industries. The Party indicated in the NIR (p.762) that industrial and commercial effluents discharged in collection stations are treated entirely under aerobic conditions and, therefore, no emissions associated with industrial and commercial effluents occur. The Party reported in the NIR (pp.763–766) the CH_4 EFs, including COD values, used for estimating emissions from industrial wastewater treatment plants including sludge treatment. During the review, the Party confirmed that it reported in the NIR information relating to the amount of COD generated by the industries considered in the calculations and processed through each treatment system. The ERT considers that this recommendation has not yet been fully implemented as not all information on AD and industries considered in the estimates necessary to understand the calculations of CH_4 emissions from industrial wastewater were provided.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
W.12	5.D.2 Industrial wastewater – CH$_4$ (W.18, 2021) Transparency	Clearly specify in the NIR all assumptions and underlying data used to quantify CH$_4$ emissions from industrial wastewater, in particular AD, the amount of sludge treated by the industries themselves and the amount of COD from industries received by lagoons and the MCF assumed for treatment of industrial wastewater in lagoons.	Resolved. The Party reported in its NIR (pp.762–765) the assumptions and underlying data used to quantify CH$_4$ emissions from industrial wastewater, including the amount of COD from industries received by lagoons. In addition, the Party reported in the NIR (p.763) information on the COD of food treated in natural lagoons and the EF values for the sludge anaerobic digestion process and "in situ" treatment of sludge. The Party also reported in the NIR (table 233, p.763) an MCF of 0.2 for industrial wastewater treatment in lagoons. The amount of sludge treated by industries "in situ" was also reported in the NIR (p.764). The ERT considers that this recommendation has been fully implemented.
W.13	5.D.2 Industrial wastewater – CH$_4$ (W.18, 2021) Transparency	Include in CRF table 5.D the amount of CH$_4$ recovered for energy production from sludge treated by the industries themselves.	Resolved. The Party reported in CRF table 5.D the amount of CH$_4$ recovered for energy production from sludge treated by the industries themselves (e.g. 64.10 kt for 2020).

KP-LULUCF

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
KL.1	General (KP-LULUCF) – (KL.1, 2021) (KL.1, 2019) (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 a minimum, information is collected on a continuous basis to be included in France's future annual submissions 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.	The ERT notes that, although the national system for the overseas territories is limited compared with the system for mainland France, the Party demonstrated the improvements made to ensure that, at a minimum, necessary information is collected on a continuous basis: (a) Resolved. France provided in the NIR (section 6.3.1, p.608) information on the data sources for the forest area and forest area changes for the overseas territories. During the review, the Party further explained the changes in its national system for collecting the required data sets for the overseas territories on a continuous basis; (b) and (d) Resolved. With regard to natural disturbances, the Party reported in its NIR (p.799) that it does not apply the provisions for natural disturbances. France provided detailed information on areas and carbon stock losses associated with wildfires and harvesting, disaggregated by land use and region, for the complete time series in an annex to the NIR (LULUCF_Background-d.xlsm); (c) Resolved. With regard to biomass carbon stock gains, the NIR (section 6.4.2.1, p.652) describes the method used to calculate removals in forest land remaining forest land for the overseas territories, which indicates that the Party is applying a precautionary principle for gains and considers that the growth of forest only compensates for harvest.
KL.2	General (KP-LULUCF) – (KL.2, 2021) (KL.2, 2019) (KL.3, 2017) (KL.4,	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 or converted areas to enhance the accuracy of estimates of GHG emissions	Resolved. France used the data from the NFI plots collected in the areas subject to disturbance or land-use conversion for estimating biomass, but did not use the data for estimating DOM carbon stocks in disturbed or converted areas. The Party explained in the NIR (section 6.3.1, p.614) that the values of average forest carbon stocks lost during clearing were used to estimate emissions from clearing, which are

	2016) (KL.4, 2015) Accuracy	associated with disturbance of forest land and their conversion to other land uses.	not the average carbon stock in forest land remaining forest land. Although the data on average forest carbon stocks lost during clearing were not applied to estimate DOM in burned areas, France provided in the NIR (section 6.4.2, p.654) the methodology and assumptions used to estimate the emissions in burned areas, including information on the impact of wood residues in the estimates. The ERT notes that the accuracy of the estimates of GHG emissions associated with disturbance has been adequately improved, taking into account the available data from the NFI plots, and considers that the previously identified issue has been adequately addressed. The ERT also notes that the approach applied by the Party of not using the average forest carbon stocks lost during clearing for estimating DOM carbon stocks in disturbed or converted areas does not necessarily lead to an overestimation of removals or an underestimation of emissions. Therefore, the ERT considers that the recommendation has been addressed.
KL.3	General (KP-LULUCF) – (KL.3, 2021) (KL.3, 2019) (KL.25, 2017) KP reporting adherence	Use the notation key "NA" in accordance with footnote 2 to CRF table NIR-2 for the activities not elected to be accounted for in the second commitment period of the Kyoto Protocol.	Not resolved. France reported activities not elected to be accounted for in the second commitment period of the Kyoto Protocol as "NE" in CRF table NIR-2, but reported the correct notation key ("NA") in CRF table NIR-1. The Party also reported in the NIR (section 11.1.1, p.787) that grassland management, CM, GM, RV and WDR were not elected for the second commitment period. The ERT notes that the Party has adequately communicated its elected activities in relevant parts of the NIR and CRF tables. The ERT considers that the use of the notation key "NE" is no longer relevant and concluded that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol. Therefore, this issue was not included in the possible list of potential problems and further questions raised.
KL.4	General (KP-LULUCF) – (KL.4, 2021) (KL.4, 2019) (KL.5, 2017) (KL.6, 2016) (KL.6, 2015) Accuracy	Allocate the appropriate portion of harvested wood to AR land and remove it from FM, and revise carbon stock change estimates for AR and FM accordingly.	Resolved. France reported in CRF table 4(KP-I)C all carbon stock changes in HWP under FM, while the carbon stock changes in HWP in deforestation and AR areas were reported as "NO". The Party also reported in the NIR (section 11.4.5, p.795) that no harvest has been taken into account in AR areas. The ERT noted that in the 2021 review report, it is stated that the Party indicated that sources of harvested wood are difficult to monitor, and that broad assumptions need to be made to revise the allocation of HWP. The ERT notes that as long as all harvests are taken into account in FM, the current allocation does not lead to an overestimation of removals or an underestimation of emissions in the overall accounting of KP-LULUCF (see ID# KL.16 below).
KL.5	General (KP-LULUCF) – (KL.5, 2021) (KL.5, 2019) (KL.7, 2017) (KL.8,	Address the inconsistency between the information 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	Resolved. The Party reported in its NIR (p.799) that it does not apply the provisions for natural disturbances. During the review, the Party explained that pests and droughts were possible elements to be included in the background level; however, as those elements could not actually be estimated, the Party decided not to apply the provisions for natural disturbances in its reporting under the Kyoto Protocol.

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
	2016) (KL.8, 2015) Accuracy	in the estimates of the background level and margin for FM and AR.	
KL.6	General (KP-LULUCF) – (KL.6, 2021) (KL.6, 2019) (KL.10, 2017) (KL.9, 2016) (KL.9, 2015) Completeness	Either report evidence that such an assumption is accurate (that in overseas territories the biomass carbon stock in forest land, including both land under FM and AR, is at equilibrium) or estimate, at least at tier 1, biomass net carbon stock changes for FM and AR land in overseas territories and report those estimates.	Resolved. France provided in the NIR (section 6.3.1, pp.608–612) information on the data sources for the forest area and forest area changes for the overseas territories, which indicates that the Party does not apply the assumption that the biomass carbon stock in forest land is at equilibrium. With regard to carbon stock gains, the NIR (section 6.4.2.1, p.652) describes the approach used to calculate net removals in forest land remaining forest land for the overseas territories. The Party confirmed during the review that it calculates forest biomass carbon stock changes in French Guiana and other minor overseas territories using a tier 2 approach and assumptions and parameters consistent with the 2006 IPCC Guidelines, taking into account the harvesting zones and specific regeneration growth factor. The ERT considers that the recommendation has been addressed.
KL.7	General (KP-LULUCF) – (KL.7, 2021) (KL.7, 2019) (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 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 provided in the NIR (section 6.4.2.1, p.645) information on the methodology used to estimate the biomass and DOM carbon stock changes applying the gain–loss method. However, the Party did not provide information on applying the stock-difference method to verify the estimates of biomass and DOM net carbon stock changes. During the review, the Party clarified that it conducted a comparative analysis of carbon stock changes, mainly to improve the reporting under the Convention, and provided background data and calculations to the ERT. It added that any changes would also have an impact on the reporting under the Kyoto Protocol. France further explained that the stock-difference method cannot be directly applied to the reporting under the Kyoto Protocol since there are no permanent plots on which to track carbon stock changes due to AR, deforestation and FM. The ERT agrees with the explanation provided by France and considers the level of accuracy of the estimates adequate. In particular, it notes that, while the use of the stock-difference method at the level of each single plot as a means of verification may have improved the accuracy of the estimates, it may not necessarily indicate that the current method, in which this information is not used in the calculations, leads to an overestimation of removals or an underestimation of emissions. The ERT considers that the recommendation is no longer relevant for the purposes of verifying the method used by the Party for estimating biomass and DOM net carbon stock changes, and concludes that any possible underestimate would be below the significance threshold for application of an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), in conjunction with decision 4/CMP.11 (196.48 kt CO_2 eq). Therefore, this issue was not included in the possible list of potential problems and further questions raised.
KL.8	General (KP-LULUCF) – (KL.8,	Provide definitions for planted and natural forests, and distinguish the areas of planted and natural	Not resolved. The Party did not provide definitions for planted and natural forests, or distinguish the areas of planted and natural forests in the NIR and report their total

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
	2021) (KL.19, 2019) KP reporting adherence	forests in the NIR and report their total areas in CRF table NIR-2.1 instead of "NE".	areas in CRF table NIR-2.1. France explained in the NIR (section 11.3.1.3, p.792) that, as the GHG emission flows in the French inventory for the LULUCF sector are estimated using forest inventories and field surveys, it is not possible to separate the "natural" part of the GHG emission flows estimated for managed lands. The ERT notes that since all harvest is taken into account in the estimates for forest land remaining forest land, not separating the areas of planted and natural forests does not necessarily lead to an overestimation of removals or an underestimation of emissions. The ERT considers that the recommendation to distinguish the areas of planted and natural forests is no longer relevant and concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol and therefore did not include it in the possible list of potential problems and further questions raised.
KL.9	General (KP-LULUCF) – CO_2 (KL.21, 2021) Accuracy	Revise the estimates by adhering to the 2006 IPCC Guidelines for estimates of land-use conversions to annual crops or grass meadows, in particular regarding the assumption that carbon stock in living biomass for these subcategories is zero before conversion or provide country-specific quantitative data and documentation in the NIR to support the current approach and assumptions.	Resolved. Although France did not revise the estimates of land-use conversions to annual crops or grass meadows by fully adhering to the 2006 IPCC Guidelines, the Party reported in its NIR (table 190, p.673; and table 200, p.686) that the final carbon stock in living biomass for the previous land use is considered to be zero for conversions to cropland and grassland. The footnotes to table 190 of the NIR (p.673) explain that, by definition, the cropland category "annual crops" does not contain vegetation other than the herbaceous layer, that the carbon stock on this stratum is counted as nil, and that the IPCC default value was not used owing to a lack of data on its relevance to national circumstances. The Party also indicated that one of the main reasons for not using the IPCC default values is that, since only woody biomass is currently estimated in the NFI, even though table 1.1 of the 2006 IPCC Guidelines (vol. 4, chap. 1, p.1.9) defines biomass as including herbaceous understory vegetation, the Party applied a methodology that focuses on biomass that can be measured and estimated without using too many assumptions. Another reason provided by the Party is that the value of 10 t dm/ha in the 2006 IPCC Guidelines (vol. 4, chap. 5.3.1.2, table 5.9, p.5.28) seems high for use as an average biomass carbon stock for the majority of cropland defined as annual crops or herbaceous meadows in France. Although no additional information was provided by France during the review, the ERT notes that the Party adequately justified its methodological choice on the basis of available national data and information and adequately addressed any issues of accuracy. The ERT considers that the recommendation has been addressed.
KL.10	FM – CO_2, CH_4 and N_2O (KL.10, 2021) (KL.10, 2019) (KL.13, 2017) (KL.12, 2016) (KL.12, 2015)	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	Not resolved. The ERT noted that the original recommendation in the 2015 review report was aimed at ensuring, as per the guidance in the Kyoto Protocol Supplement (p.2.97), that France provide information in the NIR on the main factors responsible for a higher (or lower) level of removals during the commitment period compared with the FMRL, as well as information on whether the accounting quantity (AQ = FM – FMRL) is consistent with those factors. France explained in the NIR (section

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
	KP reporting adherence	emissions and removals included in the FMRL correction value, including:	11.5.5, p.802) that the accounting debit for FM is explained by a downward trend in the forest sink since 2010. Although the monitoring data available for this sink are still insufficient to fully understand the exact reasons for this evolution, France indicated in the NIR (p.803) that the sharp increase in mortality and decline in tree growth in recent years show a weakening of the forest in the face of repeated episodes of drought and parasitic attacks. The ERT notes that, although the Party did not report detailed time-series data as requested in the recommendation, it provided clear information on the main factors responsible for the lower level of removals during the commitment period, which are consistent with the accounting quantity. Therefore, the recommendation that the Party 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 is not strictly necessary. The ERT considers that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol and therefore did not include it in the possible list of potential problems and further questions raised.
		(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 and 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 and of GHG emissions from natural disturbances included in the FMRL correction value.	
KL.11	FM – CO_2 (KL.11, 2021) (KL.11, 2019) (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.	Resolved. The ERT noted that the original recommendation in the 2015 review report was intended to ensure consistency in the factors applied in the FMRL and in the FM estimates to calculate the total biomass of forest from the growing stock volume, applying the same age-class structure. France explained in the NIR (section 11.5.2.2, p.797) that the FMRL is based on forest modelling data that are different from the forest data used for the inventory. Nevertheless, a calibration procedure (also called "post adjustment") enables consistency to be restored between the historical FM estimates and the FMRL. The ERT notes that the use of different age-class structures is accommodated by the calibration procedure and the issue does not lead to an overestimation of removals or an underestimation of emissions. The ERT considers that the recommendation has been addressed.
KL.12	FM – CO_2 (KL.14, 2021) (KL.20, 2019) Transparency	Include in the NIR the calculation of the technical correction and a description of how consistency between the FMRL and the annual GHG inventory is ensured.	Resolved. France reported the value for the technical correction to the FMRL in the NIR (section 11.5.2.3, p.798) and in the CRF accounting table (23,318 kt CO_2 eq), including information on the calculation approach. During the review, the Party provided an Excel spreadsheet showing how the FMRL technical correction was calculated, which included the formulas applied to obtain the value for the technical correction using historical data consistent with the data reported in CRF tables 4.A and 4(V), as well as the background assumptions for the model used. This enabled the ERT to ensure that the forest area under FM in the overseas territories was considered and to understand the methodological consistency between the FMRL and actual GHG emission estimates for HWP. Since the Party reported in its NIR (p.799)

			that it does not apply the provisions for natural disturbances, the technical correction related to natural disturbance was not implemented. The ERT did not identify any errors in the calculation of the technical correction to the FMRL. The ERT considers that the recommendation has been addressed.
KL.13	FM – CO$_2$ (KL.15, 2021) (KL.21, 2019) Transparency	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.	Resolved. The Party reported in its NIR (p.799) that it does not apply the provisions for natural disturbances; therefore, no information was provided on the background level and margin for either AR or FM. During the review, the Party explained that pests and droughts were possible elements to be included in the background level, but as those elements could not actually be estimated, the Party decided not to apply the provisions for natural disturbances in its reporting under the Kyoto Protocol.
KL.14	HWP – CO$_2$ (KL.16, 2021) (KL.16, 2019) (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 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 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.	The ERT noted that the following reporting elements of the recommendation have been implemented by the Party: (a) Resolved. France provided the time series of data on HWP domestically produced from domestic wood for each HWP category in an annex to the NIR (LULUCF_Background-d.xlsm); (b) Addressing. France reported disaggregated data on HWP domestically produced from domestic wood in an annex to the NIR (LULUCF_Background-d.xlsm), but did not provide information to fully demonstrate on the basis of the data that HWP domestically produced from domestic wood have been singled out from the total HWP domestically produced. During the review, the Party explained the calculation procedures used to estimate HWP and single out HWP produced from domestic wood (see ID# L.18 in table 5). The ERT considers that the information on the methodology used provided by the Party during the review is appropriate and demonstrates the source and outcome of the contribution of HWP, and concluded that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol and therefore did not include it in the possible list of potential problems and further questions raised; (c) Resolved. In addition to the background data provided in the annex to the NIR (LULUCF_Background-d.xlsm), France included in the NIR (section 6.10.2, p.707) a description of the methodology and data sources used to estimate the contribution of exported HWP, domestically produced with domestic wood, which is consistent with the requirements for reporting the HWP contribution under Article 3, paragraph 4, of the Kyoto Protocol. During the review, the Party explained in detail the assumption that all exported wood comes from the wood harvested in France; (d) Resolved. France provided in table 241 of the NIR (p.802) data on historical inflows and outflows to obtain the HWP contribution, as required under Article 3, paragraph 4, of the Kyoto Protocol, which is consistent with the reporting of HWP

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			under the Convention, albeit with differences for 2008–2012 due to the specific reporting requirements regarding the contribution of HWP during the first commitment period of the Kyoto Protocol. During the review, the Party explained that the calculations applied for the reporting under the Convention and its Kyoto Protocol are based on the same data source, assumptions and parameters, and demonstrated that consistency is maintained between the harvesting rate reported for estimating biomass net carbon stock change in forest land, both in the reporting on LULUCF and KP-LULUCF, and domestic production of HWP.
KL.15	HWP – CO_2, CH_4 and N_2O (KL.17, 2021) (KL.17, 2019) (KL.22, 2017) (KL.20, 2016) (KL.20, 2015) KP reporting adherence	Report verification information for the estimates of the HWP contribution. Verification information may be an alternative estimate prepared applying the default methodology contained in the Kyoto Protocol Supplement.	Resolved. France reported in the NIR (section 11.5.2.5, pp.799–800) that the calculation of HWP is based on the first-order decay function provided in the 2006 IPCC Guidelines (vol. 4, chap. 12, p.12.9) and that it no longer uses a tier 3 method with a gamma function as in previous annual submissions. The ERT notes that the Party applied a methodology in line with the Kyoto Protocol Supplement (table 1, p.O.8); verification information for applying a tier 3 method is therefore not required.
KL.16	HWP – CO_2 (KL.18, 2021) (KL.22, 2019) KP reporting adherence	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. Also, 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.	Not resolved. The ERT noted that CRF table 4(KP-I)C does not include information on the amount of wood originating from deforestation, AR and FM, and the volumes of wood originating from deforestation and other land uses in cells D17 and D18 respectively (reported as "NO"). During the review, France demonstrated that this reporting does not necessarily lead to an overestimation of removals or an underestimation of emissions. The Party explained that, while inputs to HWP are based on surveys of sawmills, where it is not possible to specify that the wood is not from deforested areas, a large part of the wood is certified (e.g. two thirds of the wood produced in France was certified by the French Forest Certification Scheme (PEFC) in 2020) and comes from sustainably managed forests (i.e. the area of FM). Considering that deforested areas are not deforested for wood production and are mostly on forest that is not actively managed, the Party considers that wood from deforested areas is very likely to be used as fuelwood. In France, as a lot of fuelwood is used for diverse purposes, there are significant commercial opportunities for selling wood for fuelwood since some of it can even be produced from actively managed forest. The Party also provided the ERT with alternative estimates of the HWP contribution excluding HWP from deforested areas, and an alternative FMRL taking into account the exclusion of HWP from deforested areas, which cancels out a potential overestimation of removals owing to the inclusion of HWP from deforested areas, and demonstrated that the exclusion does not lead to an overestimation of removals or an underestimation of emissions. Taking into account that the recommendation is no longer relevant when considering the approach taken and assumptions used by the Party for its estimates, the ERT concluded that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its

ID#	Issue/problem classification[a]	Recommendation from previous review report	ERT assessment and rationale
			commitments for the second commitment period of the Kyoto Protocol and therefore did not include it in the possible list of potential problems and further questions raised.
KL.17	HWP – CO$_2$ (KL.19, 2021) (KL.23, 2019) Transparency	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.	Resolved. The Party reported in its NIR (pp.801–802) the methodology used and table 241 (p.802) to show how the emissions from HWP accounted for in the first commitment period of the Kyoto Protocol have been excluded from the accounting for the second commitment period.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) in which the issue 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.

IV. Issues and problems identified in three or more 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 and/or problems included in table 4 have been identified in three or more successive reviews, including the review of the 2022 annual submission of France, and had not been addressed by the Party at the time of publication of this review report.

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

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
General		
G.3	Clearly explain the methodologies and the sources of data used for each part of the French metropolitan and overseas territories.	6 (2014–2022)
G.4	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.	4 (2017–2022)
Energy		
E.1	Disaggregate the consumption of the NEU of solid fuels (coking coal and coke oven coke) used for NEU and correctly allocate the consumption of the different fuel types in CRF table 1.A(d).	3 (2019–2022)
IPPU		

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
I.1	Include information in the 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 lime producers federation, and the reasons for any change in the CO_2 EF between 2016 and 2017.	3 (2019–2022)
I.7	Report CH_4 emissions from sinter production under iron and steel production.	4 (2017–2022)
I.9	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.	3 (2019–2022)
Agriculture		
A.2	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.	3 (2019–2022)
LULUCF		
L.3	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.	3 (2019–2022)
L.4	Identify land representation of cropland accurately in order to report emissions and removals taking into account the 20-year transition period for land conversions. In doing so, depending on available resources, consider (1) improving the 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).	4 (2017–2022)
L.6	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.	7 (2013–2022)
L.8	Distinguish between perennial and annual crops in the area data for the overseas territories, using, in the absence of country-specific information, default carbon stock change factors from the 2006 IPCC Guidelines (vol. 4, tables 5.1–5.3).	3 (2019–2022)
L.10	Include the net losses due to the conversion from forest land to cropland in CRF table 4.B under losses, and use the notation key "IE" for gains in the carbon stock change for living biomass per area to indicate that the gains are inherently part of the losses.	3 (2019–2022)
L.11	Provide estimates of biomass losses from conversion of perennial crops to other land uses (including cropland converted to wetlands, settlements and other land).	6 (2014–2022)

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
L.13	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.	5 (2015/2016–2022)
L.14	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.	5 (2015/2016–2022)
L.15	Provide information in the NIR on the HWP in SWDS, namely whether the emissions and 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 data, used for calculating the estimates.	3 (2019–2022)
L.16	Estimate N_2O emissions from N fertilization on 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. In addition, ensure that the description of the use of the notation keys in the NIR matches their actual use in the CRF tables.	3 (2019–2022)
Waste		
W.1	Include in chapter 7.1 of the NIR an overview of all waste generated and the extent to which it is recycled, incinerated, landfilled or treated otherwise (including waste types specified in the 2006 IPCC Guidelines, vol. 5, chap. 3.5 and ensuring the inclusion of waste that is considered inert).	4 (2017–2022)
W.3	Report the correct value used for DOC_f in the CRF tables.	5 (2015/2016–2022)
W.10	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.	5 (2015/2016–2022)
W.11	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.	5 (2015/2016–2022)
KP-LULUCF		
KL.3	Use the notation key "NA" in accordance with footnote 2 to CRF table NIR-2 for the activities not elected to be accounted for in the second commitment period of the Kyoto Protocol.	4 (2017–2022)
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 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.	5 (2015/2016–2022)
KL.8	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".	3 (2019–2022)

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
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:	5 (2015/2016–2022)
	(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 and 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 and of GHG emissions from natural disturbances included in the FMRL correction value.	
KL.14	Report in CRF table 4(KP-I)C and in the NIR, as follows:	5 (2015/2016–2022)
	(b) Information on how HWP domestically produced from domestic wood have been singled out from the total HWP domestically produced.	
KL.16	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. Also, 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.	3 (2019–2022)

a Reports on the reviews of the 2018 and 2020 annual submissions of France have not yet been published. Therefore, 2018 and 2020 were not included when counting the number of successive years for this table. In addition, as the reviews of the Party's 2015 and 2016 annual submissions were conducted together, they are not considered successive reviews and 2015/2016 is counted as one year.

V. Additional findings made during the individual review of the Party's 2022 annual submission

10. Table 5 presents findings made by the ERT during the individual review of the 2022 annual submission of France that are additional to those identified in table 3.

Table 5
Additional findings made during the individual review of the 2022 annual submission of France

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
General			
G.6	NIR	The Party did not report national total emission estimates with and without indirect CO_2 emissions in the relevant CRF tables in accordance with paragraph 29 of the UNFCCC Annex I inventory reporting guidelines, although indirect CO_2	Yes. Convention reporting adherence

		emissions were estimated and reported within the inventory. The Party reported national total emission estimates with indirect CO_2 emissions as "NA". During the review, the Party provided national total emission estimates including indirect CO_2 emissions, as requested by the ERT.	
		The ERT recommends that the Party report the national total emission estimates with and without indirect CO_2 emissions in the relevant CRF tables in accordance with paragraph 29 of the UNFCCC Annex I inventory reporting guidelines.	
G.7	NIR	The Party submitted with its NIR a file containing the OMINEA database of EFs (BDD_OMINEA_A_EF-d), which includes data that are not relevant to the GHG inventory and reduces the transparency of the reporting.	Yes. Transparency
		The ERT recommends that the Party include in the NIR only an extract of the OMINEA database which is tailored to the reporting of GHG emissions and which includes, for example, the EFs used to estimate emissions for the UNFCCC reporting categories and required UNFCCC gases only, in order to improve the transparency of the NIR and ensure consistency with the requirements of the UNFCCC Annex I inventory reporting guidelines.	
G.8	NIR	The Party reported in its NIR information on all methodologies used for estimating emissions for the national inventory but did not include information on all EFs used. The ERT noted that France refers in all sections of the NIR to the OMINEA database of EFs (BDD_OMINEA_A_EF-d) for more detailed information on EFs. The ERT acknowledges that the OMINEA database is very comprehensive but it does not allow the ERT to determine easily the EFs used for each category and subcategory of the GHG inventory.	Yes. Convention reporting adherence
		The ERT recommends that the Party include the EFs used in the calculations for all categories and subcategories of the GHG inventory under all sections of the NIR on methodology, rather than including the same standard paragraph in the NIR that refers to the file containing the OMINEA database of EFs (BDD_OMINEA_A_EF-d).	
G.9	QA/QC and verification	The Party reported in its NIR (p.55) that each year an external QA process of the GHG inventory is conducted by the European Union. During the review, the Party clarified that it does not consider this external review to be part of its annual QA/QC plan but considers it to be an ad hoc international review. However, the ERT considers that this activity could be assumed to be an integral part of the Party's QA process for the annual submission.	Not an issue/problem
		The ERT encourages the Party to provide details in its NIR on the outcomes of the annual review process of the GHG inventory conducted by the European Union.	
Energy			
E.5	Comparison with international data – natural gas – CO_2	France reported in CRF table 1.A(b) data on natural gas production that deviate significantly from the corresponding IEA data for 2014−2020 (with differences ranging from 16.3 to 91.6 per cent). For 2020, the discrepancy between CRF table 1.A(b) and IEA data is 91.6 per cent. During the review, the Party explained that the discrepancies between the data reported in CRF table 1.A(b) and the IEA data on natural gas production for 2014−2020 are due to the fact that data on "receipts from other sources" were added to the natural gas production data for 2014–2020 for reporting in CRF table 1.A(b). During the review, the Party indicated that "receipts from other sources" includes biogas production, which should not be allocated to natural gas in CRF table 1.A(b), as it refers only to fossil natural gas. The Party further indicated that biogas production will be removed from the data on natural gas production reported in CRF table 1.A(b) for the next annual submission and stated that there will be a discrepancy in the apparent consumption between the IEA	Yes. Comparability

ID#	*Finding* classification	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?[a]*
		data and the values reported by the Party under the reference approach. However, the Party did not provide further information on the reasons for this discrepancy.	
		The ERT recommends that the Party remove biogas production from the data on natural gas production reported in CRF table 1.A(b) for 2014–2020 and explain in the NIR the reasons for any resulting discrepancies in the apparent consumption of natural gas between the IEA data and the estimates under the reference approach reported in CRF table 1.A(b).	
E.6	1.A.1.a Public electricity and heat production – solid, liquid and gaseous fuels – CO_2	The Party reported in its NIR (section 3.2.4.2, p.165) that a tier 1 methodology (using IPCC default EFs) was used to estimate CO_2 emissions from hard coal, heavy fuel oil and gaseous fuels combusted in district heating plants not subject to allowances under the EU ETS. It reported these emissions under subcategory 1.A.1.a public electricity and heat production. The ERT noted that CO_2 emissions for subcategory 1.A.1.a public electricity and heat production were identified as a key category and that using a tier 1 methodology for these emission estimates is not in accordance with the 2006 IPCC Guidelines (vol. 2, chap. 1, figure 1.2, p.1.9). During the review, the Party clarified that it is working on extending the EFs used for facilities under the EU ETS to non-ETS facilities. Contrary to the information reported in the NIR (p.165), the Party clarified during the review that a country-specific CO_2 EF for natural gas (56.32 t/TJ for 2020) was used for the CO_2 emission estimates in cases where no plant-specific EF was available.	Yes. Accuracy
		The ERT recommends that the Party apply a higher-tier estimation methodology in accordance with the decision tree in the 2006 IPCC Guidelines (vol. 2, chap. 1, figure 1.2, p.1.9) to estimate CO_2 emissions from hard coal and heavy fuel oil combusted in district heating plants not subject to allowances under the EU ETS under subcategory 1.A.1.a public electricity and heat production, and correctly describe in the NIR the EFs used, in particular the CO_2 EF for natural gas.	
E.7	1.B.1.b Solid fuel transformation – solid fuels – CH_4	The Party reported a constant CH_4 IEF of 0.18 kg/t for subcategory 1.B.1.b solid fuel transformation in CRF table 1.B.1 for 1990–2006. For 2007 to 2020, the ERT noted inter-annual changes in the CH_4 IEF for this subcategory. For example, a significant inter-annual change was reported between 2010 and 2011, when the CH_4 IEF decreased from 0.22 to 0.07 kg/t. Between 2011 and 2019, the CH_4 IEF remained in the range of 0.05–0.09 kg/t but increased between 2019 and 2020 from 0.06 to 0.27 kg/t. During the review, the Party clarified that the sharp increase in the CH_4 IEF between 2019 and 2020 was caused by a malfunction due to a defect in the insulation of a coke oven, which led to an increase in CH_4 emissions and in the corresponding CH_4 IEF. On the basis of information provided in the NIR (section 3.3.1.2.2, p.275), the ERT notes that the overall decrease in the CH_4 IEF values between 2010 and 2019 was probably due to a change in the methodology used to estimate CH_4 emissions, using regulatory measurements instead of the tier 2 methodology previously applied. The ERT considered that this latest methodological change in the reporting of emissions might not have been addressed properly in accordance with the 2006 IPCC Guidelines (vol. 1, chap. 5.3.3, pp.5.8–5.14) because appropriate splicing techniques were not considered and applied to minimize possible inconsistencies in the time series. During the review, France clarified that it will further investigate this issue by contacting the facility to clarify whether the decrease in CH_4 emissions from 2010 onward is due to a change in methodology or other possible reasons related to the process. The annual CH_4 emissions for subcategory 1.B.1.b solid fuel transformation range from 3.75 to 29.75 kt CO_2 eq over the entire time series (1990–2020). Therefore, there are no significant over- or underestimations of CH_4 emissions for this subcategory (the threshold of significance for France is equal to 196.48 kt CO_2 eq).	Yes. Transparency
		The ERT recommends that the Party investigate and explain in the NIR the reasons for the significant decrease in the CH_4 IEFs for subcategory 1.B.1.b solid fuel transformation reported for 2010–2019 (from 0.22 kg/t to within the range	

		of 0.05–0.09 kg/t) compared with the constant CH_4 IEF reported for 1990–2006 (0.18 kg/t). Further, the ERT recommends that the Party, depending on the reasons for the significant decrease identified in the CH_4 IEFs, apply appropriate splicing techniques in accordance with the 2006 IPCC Guidelines (vol. 1, chap. 5.3.3, pp.5.8–5.14) to minimize possible inconsistencies in the time series and report, if necessary, revised CH_4 emission estimates for the corresponding years.	
IPPU			
I.16	2.G.1 Electrical equipment – SF_6	The Party reported in its NIR (p.459) that recovery of SF_6 emissions occurs in France from activities of recycling and destruction of SF_6. France also reported in the NIR (pp.455–466) that SF_6 emissions from electrical equipment were estimated on the basis of data provided by ADEME through its national observatory on fluorinated gases, which collects data on recovery, recycling and destruction at decommissioning of electrical equipment. The Party stated in the NIR (p.459) that only one company in France collects SF_6 from electrical equipment and that the quantities recovered may vary between years. The ERT noted that France reported recovery of SF_6 emissions (for recycling or destruction) as "NO" in CRF table 2(II).B-H (sheet 2) for the entire time series and did not report in the NIR information on emissions from recycling or destruction activities, or on the methodology used to estimate these emissions. As recovery of SF_6 occurs during decommissioning and maintenance of electrical equipment, and as ADEME provides Citepa with data on all collected SF_6, including on the amounts recycled and destroyed, during the review the ERT requested France to provide information on the method used for estimating emissions for category 2.G.1 electrical equipment. In its response, the Party confirmed that SF_6 is recovered from electrical equipment in France and clarified that the emissions reported in CRF table 2(II).B-H (sheet 2) are from stock and disposal only and do not include emissions from destruction and recycling. France provided a comprehensive explanation of the methodology used to estimate emissions from disposal, which is based on data provided by destruction and recycling operating plants. France also provided data on the amounts of SF_6 destroyed and the destruction factor used, which is based on measurements made and reported by the only facility collecting SF_6 from electrical equipment, and which is verified by the environmental services of the Regional Directorate for Industry, Research and Environment. The ERT considers that emissions from recycling could be estimated using the plant-specific factor of 1.3 per cent, which is very conservative considering that the plant measurements indicate a level of vacuuming which is higher than 98.7 per cent. Since the missing emissions from destruction and recycling calculated by the ERT using data and parameters provided by the Party amounted to 0.0079 kt CO_2 eq for 2020, which is below the threshold of significance for France (equal to 196.48 kt CO_2 eq), the ERT did not include this issue in the possible list of potential problems and further questions raised. In response to a question raised by the ERT during the review about whether imports of SF_6 are destroyed or recycled by the single recycling and destruction plant operating in France, the Party clarified that although there are imports of SF_6 for destruction and recycling, according to the information provided by the French association of distributors of refrigerant fluids (known as ADC3R), the quantities for these activities are not currently reported on GEREP. However, France confirmed that emissions reported to GEREP are in accordance with national rules for reporting activities and emissions from industrial plants, regardless of where the recovered products or waste originated.	Yes. Completeness
		The ERT recommends that the Party estimate and report SF_6 emissions from SF_6 recovery activities (recycling and destruction) in CRF table 2(II).B-H (sheet 2), ensuring the consistency of the entire time series for category 2.G.1 electrical equipment, and include recovery activities among the activities subject to QC procedures. The ERT also recommends that the Party describe in detail in the NIR the SF_6 emission sources for recovery activities (destruction and	

ID#	*Finding* classification	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?[a]*
		recycling), provide data on SF_6 imports for recycling or destruction for the entire time series, and report the methodology and AD used to estimate SF_6 emissions, including all information provided during the review.	
I.17	2.G.1 Electrical equipment – SF_6	France reported in the NIR (section 4.8.2.1, p.459) on the alternative AD used for the overseas territories in cases where data have not yet been collected to estimate SF_6 emissions from electrical equipment. France used a ratio of total SF_6 emissions to total electricity production in mainland France to estimate SF_6 emissions in the overseas territories, taking into account electricity production by territory. During the review, the ERT asked France to explain the rationale for using this ratio (SF_6 emissions/MWh) established for mainland France and whether it is considered representative of the situation in the overseas territories. The Party confirmed that no information is available on AD and SF_6 emissions for the overseas territories, and the ratio based on electricity production in mainland France was applied to the overseas territories for estimating SF_6 emissions given that a more accurate method is not currently available. The ERT considers that when using such a ratio, it is assumed that the electrical grid in the overseas territories is comparable to that of mainland France, which might not be the case owing to the different contexts of overseas territories and mainland France. Nevertheless, taking into account this fact, the ERT considers that no significant over- or underestimations of SF_6 emissions occurred for this subcategory. The ERT recommends that, for estimating SF_6 emissions from electrical equipment in the overseas territories, France use a ratio based on the length of the transmission (and/or distribution) lines of the electricity grid or the number of electrical substations, which is more representative than the total amount of electricity produced. The ERT also recommends that France consider the level of maintenance of equipment in the overseas territories compared with mainland France and develop a maintenance factor for equipment in the overseas territories to be applied when estimating SF_6 emissions. The ERT further recommends that the Party enhance the accuracy of the estimates by considering the different levels of maintenance of electrical equipment in the overseas territories, and estimate and report SF_6 emissions from disposal and recovery in the overseas territories.	Yes. Accuracy
I.18	2.G.4 Other (other product manufacture and use) – HFCs	The Party reported in its NIR (pp.457 and 461) limited information on activities of organic Rankine cycle systems, which have been used in France since 2012; it did not state the number of organic Rankine cycle plants in operation or their installed capacity or total stock of HFCs. France referred in the NIR to the 2016 report by ENERTIME (the only company manufacturing and operating organic Rankine cycle systems in France) and the website of the organic Rankine cycle world map (managed by scientific researchers) as sources of further information. Since 2015, France has reported HFC emissions from the HFC stock of organic Rankine cycle plants under category 2.G.4 other. The ERT noted that France did not report (either in the NIR or in the CRF tables) emissions or AD on the amounts filled into newly manufactured products or filled in operating systems or remaining in products at decommissioning. In addition, France reported emissions from manufacturing as "NO" in the CRF tables. The ERT also noted that the NIR (p.461) did not contain a clear description of the estimation methodology used and provided information only on the EFs used (2 per cent for fillings and 4 per cent in operating systems), which were sourced from the NIR of Germany. Moreover, the ratio of 3 t HFC/MW installed, which the Party used for estimating the stock of HFCs, which was not documented. During the review, the ERT, noting the lack of a methodology related to the use of organic Rankine cycle systems in the 2006 IPCC Guidelines, requested the Party to provide additional information on the methodology used to estimate HFC emissions for this category. The Party clarified that there are 41 organic Rankine cycle plants installed in France and confirmed that the ratio of 3 t HFC/MW installed used for the estimates was provided by ENERTIME .	Yes. Transparency

| | | The ERT recommends that the Party report in the NIR either the total capacity installed in MW in organic Rankine cycle plants in France or the total stock of HFCs in organic Rankine cycle systems. The ERT also recommends that the Party collect and report AD on the amounts filled into newly manufactured products and remaining in products at decommissioning (including AD on the amounts filled in operating systems), as well as the corresponding emissions of HFC-245fa and HFC-365mfc, where applicable. | |

Agriculture

A.3	3.A.1 Cattle – CH_4	The Party compared the EFs estimated for this category using a country-specific method with those estimated using the tier 2 method from the 2006 IPCC Guidelines as part of its QC procedures, as reported in the NIR (section 5.2.4, table 103, p.522). The ERT noted that the EF estimated using the tier 2 method from the 2006 IPCC Guidelines for dairy cows (148.6 kg/head/year) is double that for nursing cows (73.3 kg/head/year) reported in table 103 of the NIR for 2020. No relevant explanation was provided in the NIR for this difference. During the review, the Party clarified that the main driver for this difference is the net energy ingested, which is estimated from the energy needs of the animals according to the results of the MONDFERENT project. For 2020, the energy needs per head of dairy cow are about 60 per cent greater than those for nursing cows, mainly because of milk production and the higher maintenance requirements for milk production in dairy cows. During the review, in response to a question raised by the ERT on the Cf_i used for dairy and nursing cows based on the tier 2 method, the Party indicated that the default Cf_i value for dairy cows was weighted on the basis of the duration of the lactation cycle using the following equation: $0.386 \times$ average duration of lactation (339 days) + dry period (26 days) $\times$ 0.322)/365 = 0.381. For nursing cows, the Party used a default Cf_i value of 0.322 for non-lactating cows from the 2006 IPCC Guidelines (vol. 4, chap. 10, table 10.4, p.16). The ERT notes that although nursing cows have a lower milk yield than dairy cows, they still provide milk to suckling calves (i.e. they have the same lactation cycle as dairy cows).	Yes. Convention reporting adherence
		The ERT recommends that the Party apply the same Cf_i value for dairy and nursing cows (0.381) for the estimates calculated using the tier 2 method from the 2006 IPCC Guidelines in order to improve the accuracy of the estimates for nursing cows that are used by the Party to verify the estimates calculated using the country-specific method, and include in the NIR relevant explanations for any differences identified between the two methods.	
A.4	3.C Rice cultivation – CH_4	The Party reported in its NIR (section 5.4.2, p.563) that the amount of rice straw applied as organic amendment is 0.12 t dm/ha, but the ERT noted that in CRF table 3.C this amount is reported as 0.11 t dm/ha for 2020. During the review, the Party informed the ERT that both values reported in the NIR and in CRF table 3.C are incorrect, because the amount of rice straw was estimated as a mean for 1990–2015 instead of for 1990–2020. The correct value of rice straw applied as organic amendment for mainland France should be 0.13 t dm/ha (it is assumed that overseas areas do not apply rice straw as organic amendment). The Party further provided the ERT with the revised estimates for 2020, indicating that CH_4 emissions from rice cultivation areas of 14,045 ha in mainland France will increase by 94.5 t CO_2 eq for 2020, which is below the threshold of significance for France (equal to 196.48 kt CO_2 eq) and does not represent a potential underestimation of emissions. Therefore, the ERT did not include this issue in the possible list of potential problems and further questions raised.	Yes. Accuracy

ID#	*Finding* classification	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?[a]*
		The ERT recommends that the Party revise the CH$_4$ emission estimates for rice cultivation in mainland France for 2020 using the correct amount of rice straw applied as organic amendment (0.13 t dm/ha), and report correct data and CH$_4$ emission estimates for subsequent years.	

LULUCF

ID#	*Finding* classification	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?[a]*
L.18	4.G HWP – CO$_2$	The ERT noted that France provided in the NIR (p.708) a description of background data sources used for calculating the HWP contribution in CRF table 4(KP-I)C. In an annex to the NIR (LULUCF_Background-d.xlsm), the Party reported these data disaggregated by HWP category (paper, sawnwood and wood panels). However, the Party did not report the calculation procedure applied using the background data to produce the disaggregated HWP data by category and, as such, did not fully demonstrate that HWP domestically produced from domestic wood have been singled out from the total HWP domestically produced, and that all exported wood comes from the wood harvested in France. During the review, the Party explained the calculation procedure used to estimate HWP and to single out HWP produced from domestic wood. First, data on wood are collected from official national sawmill statistics. Other parameters and statistics are then used to distinguish more precisely the type of wood product and the wood from domestic harvest and imported wood. HWP from domestic wood are estimated using statistical data from the same official data portal on wood and sawmills that provides information on annual volumes of purchases of imported wood logs. The ERT notes that the NIR does not include a precise description of this procedure.	Yes. Transparency
		The ERT recommends that France include in the NIR a detailed description of the procedure applied for estimating HWP and singling out HWP produced from domestic wood in preparing the annual inventory. The ERT also recommends that France include in the NIR the equations used that demonstrate how HWP domestically produced from domestic wood have been singled out from the total HWP domestically produced in preparing the annual inventory, and justify that all exported wood comes from the wood harvested in France.	
L.19	4.G HWP – CO$_2$	The ERT notes that the Party did not estimate HWP from the overseas territories, as reported in the NIR (section 6.10.1, table 201, p.707), and did not explain the reason for its assumption of zero instantaneous oxidation, as recommended in the 2006 IPCC Guidelines (vol. 4, chap.12.7, p.12.24). During the review, the Party explained that a survey on sawnwood only exists for mainland France, and the products made with harvested wood in the overseas territories are therefore not known. The Party estimated wood harvest only for French Guiana because forestry activity is insignificant in the other overseas territories. In French Guiana, the total harvest varies from 56,158 m^3 in 2000 to 93,500 m^3 in 2020, which is a small amount of wood compared with the harvest of more than 50 million m^3 in mainland France, which increased by 18 per cent between 2008 and 2020. By testing different assumptions using a lifespan of 35 years (for sawnwood) or 2 years (for paper) for French Guiana, the Party obtained approximately the same annual stock variations, ranging from –20 to +30 kt CO$_2$/year.	Yes. Transparency
		The ERT recommends that France include in the NIR detailed information on the reason for its assumption of zero instantaneous oxidation for HWP in the overseas territories used for preparing its annual GHG inventory.	

Waste

ID#	*Finding* classification	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?[a]*
W.14	5.D.2 Industrial wastewater – CH$_4$	The Party reported in its NIR (p.763) the MCF and COD values used for estimating CH$_4$ emissions from industrial wastewater for 2020. The Party highlighted that for shallow natural lagoon-type wastewater treatment plants for the food industry it used an MCF of 0.2 and a COD value of 29.2 per cent provided on GEREP in response to an encouragement	Not an issue/problem

ID#	Finding classification	Description of finding with recommendation or encouragement	*Is finding an issue/problem?[a]*
		in the 2021 review report (ID# W.19). The Party further reported that owing to a lack of data, the share represented by natural lagoons in the treatment of wastewater from the agrifood industry was assumed to be equal to the share of natural lagoons in wastewater treatment plants. During the review, the Party indicated that related improvements are ongoing and that it will further investigate this issue in order to formulate a hypothesis on the elimination of COD by lagoons and improve the accuracy of the calculation of CH_4 emissions.	
		The ERT reiterates the encouragement from the previous review report for the Party to improve its calculation of CH_4 emissions from lagoons under category 2.D.2 industrial wastewater by establishing the share of wastewater from the agrifood industry that uses natural lagoons and by estimating the COD values for "in situ" stations for natural lagoons.	
KP-LULUCF		No findings for KP-LULUCF additional to those included in table 3 were made by the ERT during the review.	

[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 for the 2022 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.   Table I.5 presents the accounting quantities for KP-LULUCF reported by France and the final values agreed by the ERT. The final quantities of units to be issued are presented in table I.6.

VIII. Questions of implementation

13.   No questions of implementation were identified by the ERT during the individual review of the Party's 2022 annual submission.

Annex I

Overview of greenhouse gas emissions and removals and data and information on activities under Article 3, paragraphs 3–4, of the Kyoto Protocol, as submitted by France in its 2022 annual submission

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

Table I.1

Total greenhouse gas emissions and removals for France, base year–2020

(kt CO_2 eq)

| | Total GHG emissions excluding indirect CO_2 emissions | | Total GHG emissions and removals including indirect CO_2 emissions[a] | | Land-use change (Article 3.7 bis as contained in the Doha Amendment)[b] | KP-LULUCF (Article 3.3 of the Kyoto Protocol)[c] | KP-LULUCF (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[d]	520 089.99	544 076.18	NA	NA	NA		NO	
1990	520 100.22	544 086.41	NA	NA				
1995	511 596.26	536 475.53	NA	NA				
2000	529 295.95	549 005.17	NA	NA				
2010	469 112.97	507 468.01	NA	NA				
2011	444 806.44	483 263.82	NA	NA				
2012	443 771.93	484 765.90	NA	NA				
2013	441 014.42	485 605.33	NA	NA		–2 184.24	NE, IE, NO	–53 703.98
2014	416 199.30	454 613.68	NA	NA		–2 180.44	NE, IE, NO	–47 145.61
2015	423 346.42	457 923.75	NA	NA		–1 503.95	NE, IE, NO	–43 292.50
2016	433 763.80	459 328.86	NA	NA		–1 960.98	NE, IE, NO	–33 076.76
2017	445 848.40	462 591.22	NA	NA		–1 568.26	NE, IE, NO	–23 950.29
2018	429 229.91	443 321.36	NA	NA		–1 873.68	NE, IE, NO	–20 601.77
2019	422 251.61	434 539.77	NA	NA		–1 792.65	NE, IE, NO	–18 837.82
2020	378 957.08	392 962.57	NA	NA		–2 028.96	NE, IE, NO	–19 728.31

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

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

[b] The value reported in this column relates to GHG emissions from conversion of forests (deforestation) in 1990 as contained in the report on the review of the Party's report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol.

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

Table I.2
Greenhouse gas emissions and removals by gas for France, excluding land use, land-use change and forestry, 1990–2020
(kt CO_2 eq)

	CO_2[a]	CH_4	N_2O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF_6	NF_3
1990	398 424.79	69 160.89	64 724.84	4 402.20	5 202.47	NO, NA	2 154.74	16.48
1995	392 915.77	70 382.89	65 937.12	1 702.34	3 064.56	NO, NA	2 466.60	6.26
2000	414 788.47	68 602.74	53 680.54	6 735.71	2 997.49	NO, NA	2 180.33	19.89
2010	386 872.04	61 663.32	40 477.95	16 930.10	617.37	NO, NA	875.10	32.13
2011	364 820.42	60 479.26	38 878.98	17 628.80	774.04	NO, NA	650.96	31.36
2012	367 030.67	59 243.34	39 163.80	17 862.07	790.35	NO, NA	655.26	20.40
2013	368 559.43	59 079.34	38 930.28	17 771.58	670.50	NO, NA	583.57	10.63
2014	337 005.91	58 786.53	40 062.96	17 661.76	615.88	NO, NA	474.26	6.37
2015	341 630.94	57 862.11	39 895.49	17 494.30	536.57	NO, NA	498.11	6.23
2016	344 723.13	57 432.21	38 789.93	17 205.17	666.01	NO, NA	506.58	5.84
2017	347 604.96	57 010.64	40 162.03	16 637.22	707.68	NO, NA	461.05	7.64
2018	332 613.39	56 238.67	38 500.05	14 847.44	676.73	NO, NA	432.82	12.25
2019	326 725.13	55 739.70	38 071.44	12 992.42	615.40	NO, NA	385.40	10.29
2020	289 389.57	54 641.71	36 297.32	11 735.32	543.49	NO, NA	346.60	8.54
Percentage change 1990– 2020	**–27.4**	**–21.0**	**–43.9**	**166.6**	**–89.6**	**NA**	**–83.9**	**–48.2**

Note: Emissions and removals reported for the sector other (sector 6) are not included in this table.

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

Table I.3
Greenhouse gas emissions and removals by sector for France, 1990–2020
(kt CO$_2$ eq)

	Energy	IPPU	Agriculture	LULUCF	Waste	Other
1990	367 271.53	78 728.80	80 802.95	–23 986.19	17 283.13	NO
1995	366 078.71	71 997.34	78 281.18	–24 879.27	20 118.29	NO
2000	381 989.37	64 667.55	81 291.76	–19 709.22	21 056.50	NO
2010	357 710.89	53 798.09	75 203.04	–38 355.04	20 755.98	NO
2011	335 266.81	53 201.26	74 482.22	–38 457.38	20 313.53	NO
2012	339 614.88	51 105.72	74 420.30	–40 993.97	19 624.99	NO
2013	339 477.62	52 655.98	73 954.16	–44 590.91	19 517.57	NO
2014	307 240.30	52 291.14	75 908.88	–38 414.38	19 173.36	NO
2015	313 634.17	50 664.46	75 719.98	–34 577.33	17 905.13	NO
2016	316 599.31	50 434.97	74 487.92	–25 565.06	17 806.67	NO
2017	317 967.49	51 927.98	74 835.74	–16 742.82	17 860.00	NO
2018	303 117.07	49 059.04	73 549.48	–14 091.45	17 595.78	NO
2019	297 313.21	46 563.64	72 497.69	–12 288.16	18 165.24	NO
2020	264 729.61	40 188.67	70 386.15	–14 005.48	17 658.14	NO
Percentage change 1990–2020	**–27.9**	**–49.0**	**–12.9**	**–41.6**	**2.2**	**NA**

Note: France did not report indirect CO$_2$ emissions in CRF table 6.

Table I.4
Greenhouse gas emissions and removals from activities under Article 3, paragraphs 3–4, of the Kyoto Protocol by activity, base year–2020, for France
(kt CO$_2$ eq)

	Article 3.7 bis as contained in the Doha Amendment[a]	Activities under Article 3.3 of the Kyoto Protocol		FM and elected activities under Article 3.4 of the Kyoto Protocol				
	Land-use change	AR	Deforestation	FM	CM	GM	RV	WDR
FMRL				–67 410.00				
Technical correction				23 318.00				
Base year[b]	NA				NO	NO	NO	NO
2013		–13 871.10	11 686.86	–53 703.98	NE, IE	NE, IE	NE	NO, NE
2014		–13 967.95	11 787.51	–47 145.61	NE, IE	NE, IE	NE	NO, NE
2015		–13 392.13	11 888.19	–43 292.50	NE, IE	NE, IE	NE	NO, NE
2016		–13 737.86	11 776.88	–33 076.76	NE, IE	NE, IE	NE	NO, NE
2017		–13 442.64	11 874.38	–23 950.29	NE, IE	NE, IE	NE	NO, NE

	Article 3.7 bis as contained in the Doha Amendment^a	Activities under Article 3.3 of the Kyoto Protocol		FM and elected activities under Article 3.4 of the Kyoto Protocol				
	Land-use change	AR	Deforestation	FM	CM	GM	RV	WDR
2018		−13 845.58	11 971.91	−20 601.77	NE, IE	NE, IE	NE	NO, NE
2019		−13 862.12	12 069.47	−18 837.82	NE, IE	NE, IE	NE	NO, NE
2020		−14 195.96	12 167.01	−19 728.31	NE, IE	NE, IE	NE	NO, NE
Percentage change base year–2020					**NA**	**NA**	**NA**	**NA**

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

^a The value reported in this column relates to 1990.

^b 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.

2. Table I.5 provides information on the Party's accounting quantities for reporting under Article 3, paragraphs 3–4, of the Kyoto Protocol.

Table I.5
Accounting quantities for activities under Article 3, paragraph 3, and forest management and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol for France

(kt CO_2 eq)

GHG source/sink activity	Net emissions/removals										Accounting parameters	Accounting quantities^a
	Base year^b	2013	2014	2015	2016	2017	2018	2019	2020	Total^c		
A.1. AR		−13 871.100	−13 967.945	−13 392.135	−13 737.861	−13 442.637	−13 845.581	−13 862.118	−14 195.961	−110 315.338		−110 315.337
Excluded emissions from natural disturbances^d		NO	NO	NO	NO	NO	NO	NO	NO	NO		NO
Excluded subsequent removals from land subject to natural disturbances		NO	NO	NO	NO	NO	NO	NO	NO	NO		NO
A.2. Deforestation		11 686.865	11 787.508	11 888.187	11 776.878	11 874.376	11 971.906	12 069.465	12 167.005	95 222.191		95 222.191
B.1. FM										−260 337.054		92 398.947
Net emissions/ removals		−53 703.984	−47 145.615	−43 292.503	−33 076.763	−23 950.286	−20 601.768	−18 837.823	−19 728.313	−260 337.054		

GHG source/sink activity	Base year[b]	Net emissions/removals									Accounting parameters	Accounting quantities[a]
		2013	2014	2015	2016	2017	2018	2019	2020	Total[c]		
Excluded emissions from natural disturbances[d]		NE	NE	NE	NE	NE	NE	NE	NE	NE		NE
Excluded subsequent removals from land subject to natural disturbances		NO	NO	NO	NO	NO	NO	NO	NO	NO		NO
Any debits from newly established forest		NE	NE	NE	NE	NE	NE	NE	NE	NE		NE
FMRL[e]											−67 410.000	
Technical corrections to FMRL											23 318.000	
FM cap											153 455.612	92 398.947
B.2. CM (if elected)	NO	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE		NO, NE, IE
B.3. GM (if elected)	NO	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE	NE, IE		NO, NE, IE
B.4. RV (if elected)	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE		NO, NE
B.5. WDR (if elected)	NO	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE		NO, NE

[a] The accounting quantity is the total quantity of units to be issued or cancelled for a particular activity.

[b] Net emissions and removals from CM, GM, RV and/or WDR, if elected, in the Party's base year as established in decision 9/CP.2.

[c] Cumulative net emissions and removals for all years of the commitment period reported in the annual submission under review.

[d] During the review the Party indicated that it decided not to exclude emissions from natural disturbances.

[e] As inscribed in the appendix to the annex to decision 2/CMP.7 in kt CO_2 eq per year.

3. Table I.6 provides an overview of key relevant data from France's reporting under Article 3, paragraphs 3–4, of the Kyoto Protocol.

Table I.6
Key relevant data for France under Article 3, paragraphs 3–4, of the Kyoto Protocol from its 2022 annual submission

Parameter	Data 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
Elected activities under Article 3, paragraph 4, of the Kyoto Protocol	None
Election of application of provisions for natural disturbances	Yes, for AR and FM[a]
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)
Cancellation of AAUs, CERs and ERUs and/or issuance of RMUs in the national registry for:	
1. AR	Issue 110 315 337 RMUs
2. Deforestation	Cancel 95 222 191 units
3. FM	Cancel 92 398 947 units

Note: Values in this table reflect the accounting quantities for activities under Article 3, para. 3, and FM and any elected activities under Article 3, para. 4, of the Kyoto Protocol as reported in table I.5.

[a] During the review the Party indicated that it decided not to exclude emissions from natural disturbances in its accounting.

Annex II

Information to be included in the compilation and accounting database

Tables II.1–II.8 include the information to be included in the compilation and accounting database for France. Data shown are from the Party's annual submission, including the latest revised estimates submitted, adjustments (if applicable) and the final data to be included in the compilation and accounting database.

Table II.1
Information to be included in the compilation and accounting database for 2020, including on the commitment period reserve, for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
CPR	**2 713 243 349**	–	–	**2 713 243 349**
Annex A emissions				
CO_2	289 389 568	–	–	289 389 568
CH_4	54 641 715	–	–	54 641 715
N_2O	36 297 324	–	–	36 297 324
HFCs	11 735 322	–	–	11 735 322
PFCs	543 494	–	–	543 494
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	346 604	–	–	346 604
NF_3	8 540	–	–	8 540
Total Annex A sources[a]	**392 962 569**	–	–	**392 962 569**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–14 195 961	–	–	–14 195 961
Deforestation	12 167 005	–	–	12 167 005
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–19 728 313	–	–	–19 728 313

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.2
Information to be included in the compilation and accounting database for 2019 for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO_2	326 725 127	–	–	326 725 127
CH_4	55 739 696	–	–	55 739 696
N_2O	38 071 443	–	–	38 071 443
HFCs	12 992 417	–	–	12 992 417
PFCs	615 403	–	–	615 403
Unspecified mix of HFCs and PFCs	NO, NA	–	–	NO, NA
SF_6	385 396	–	–	385 396
NF_3	10 291	–	–	10 291
Total Annex A sources[a]	**434 539 774**	–	–	**434 539 774**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–13 862 118	–	–	–13 862 118
Deforestation	12 069 465	–	–	12 069 465
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				

	Original submission	Revised submission	Adjustment	Final value
FM	−18 837 823	−	−	−18 837 823

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.3
Information to be included in the compilation and accounting database for 2018 for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO_2	332 613 391	−	−	332 613 391
CH_4	56 238 674	−	−	56 238 674
N_2O	38 500 055	−	−	38 500 055
HFCs	14 847 438	−	−	14 847 438
PFCs	676 735	−	−	676 735
Unspecified mix of HFCs and PFCs	NO, NA	−	−	NO, NA
SF_6	432 816	−	−	432 816
NF_3	12 251	−	−	12 251
Total Annex A sources[a]	**443 321 360**	**−**	**−**	**443 321 360**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	−13 845 581	−	−	−13 845 581
Deforestation	11 971 906	−	−	11 971 906
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	−20 601 768	−	−	−20 601 768

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.4
Information to be included in the compilation and accounting database for 2017 for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO_2	347 604 962	−	−	347 604 962
CH_4	57 010 639	−	−	57 010 639
N_2O	40 162 029	−	−	40 162 029
HFCs	16 637 217	−	−	16 637 217
PFCs	707 679	−	−	707 679
Unspecified mix of HFCs and PFCs	NO, NA	−	−	NO, NA
SF_6	461 052	−	−	461 052
NF_3	7 637	−	−	7 637
Total Annex A sources[a]	**462 591 217**	**−**	**−**	**462 591 217**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	−13 442 637	−	−	−13 442 637
Deforestation	11 874 376	−	−	11 874 376
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	−23 950 286	−	−	−23 950 286

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.5
Information to be included in the compilation and accounting database for 2016 for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO_2	344 723 131	–	–	344 723 131
CH_4	57 432 209	–	–	57 432 209
N_2O	38 789 927	–	–	38 789 927
HFCs	17 205 167	–	–	17 205 167
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[a]	**459 328 859**	**–**	**–**	**459 328 859**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–13 737 861	–	–	–13 737 861
Deforestation	11 776 878	–	–	11 776 878
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–33 076 763	–	–	–33 076 763

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.6
Information to be included in the compilation and accounting database for 2015 for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO_2	341 630 940	–	–	341 630 940
CH_4	57 862 105	–	–	57 862 105
N_2O	39 895 491	–	–	39 895 491
HFCs	17 494 301	–	–	17 494 301
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[a]	**457 923 746**	**–**	**–**	**457 923 746**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–13 392 135	–	–	–13 392 135
Deforestation	11 888 187	–	–	11 888 187
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–43 292 503	–	–	–43 292 503

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.7
Information to be included in the compilation and accounting database for 2014 for France
(t CO_2 eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO_2	337 005 914	–	–	337 005 914
CH_4	58 786 533	–	–	58 786 533
N_2O	40 062 956	–	–	40 062 956

	Original submission	Revised submission	Adjustment	Final value
HFCs	17 661 759	–	–	17 661 759
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[a]	**454 613 680**	**–**	**–**	**454 613 680**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–13 967 945	–	–	–13 967 945
Deforestation	11 787 508	–	–	11 787 508
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–47 145 615	–	–	–47 145 615

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.8
Information to be included in the compilation and accounting database for 2013 for France
(t CO$_2$ eq)

	Original submission	Revised submission	Adjustment	Final value
Annex A emissions				
CO$_2$	368 559 428	–	–	368 559 428
CH$_4$	59 079 338	–	–	59 079 338
N$_2$O	38 930 283	–	–	38 930 283
HFCs	17 771 584	–	–	17 771 584
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[a]	**485 605 331**	**–**	**–**	**485 605 331**
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–13 871 100	–	–	–13 871 100
Deforestation	11 686 865	–	–	11 686 865
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–53 703 984	–	–	–53 703 984

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Annex III

Additional information to support findings in table 2

Missing categories that may affect completeness

The categories for which estimation 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 the reporting in the Party's inventory are the following:

(a)   2.G.1 electrical equipment (SF_6) (see ID# I.16 in table 5);

(b)   4 cropland converted to other land uses (CO_2) (see ID# L.11 in table 3);

(c)   4.F.2 land converted to other land (CO_2 and N_2O) (see ID# L.14 in table 3).

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.htm.

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 https://www.ipcc.ch/publication/2013-revised-supplementary-methods-and-good-practice-guidance-arising-from-the-kyoto-protocol/.

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 https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/.

B. UNFCCC documents

Annual review reports

Reports on the individual reviews of the 2013, 2014, 2015, 2016, 2017, 2019 and 2021 annual submissions of France, contained in documents FCCC/ARR/2013/FRA, FCCC/ARR/2014/FRA, FCCC/ARR/2015/FRA, FCCC/ARR/2016/FRA, FCCC/ARR/2017/FRA, FCCC/ARR/2019/FRA and FCCC/ARR/2021/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/documents/510888.

Annual status report for France for 2022. Available at https://unfccc.int/sites/default/files/resource/asr2022_FRA.pdf.

Report of the technical assessment of the forest management reference level submission of France submitted in 2011, contained in document FCCC/TAR/2011/FRA. Available at https://unfccc.int/sites/default/files/resource/docs/2011/tar/fra01.pdf.

Submission of information on forest management reference levels by France. Available at https://unfccc.int/sites/default/files/awgkp_france_2011.pdf.

C. Other documents used during the review

Responses to questions during the review were received from Jonathan Hess (Ministry of Ecological Transition), including additional material on the methodology and assumptions used. The following references may not conform to UNFCCC editorial style as some have been reproduced as received:

CITEPA, Annex for 2022FRQA227, Information and data on SF_6 emissions calculation from recovery in France, 21/09/2022.

CITEPA, OMINEA report on methodologies.

CITEPA, OMINEA report on EFs.

CITEPA, Excel file on Data on Lubricants consumption from 2 stroke engines in all Overseas territories.

CIV, 2012. Alimentation des bovins : rations moyennes et autonomie alimentaire. Available at https://www.interbev.fr/wp-content/uploads/2012/12/etude-idele-alim-bovins-fr-hd.pdf.

European Environment Agency. 2022. Final Review Report, 2022 annual review of national greenhouse gas inventory data pursuant to Article 19(2) of Regulation (EU) No 525/2013, France, 20 April 2022.

Jean Devun (Institut de l'Élevage), Philippe Brunschwig (Institut de l'Élevage), Caroline Guinot (Centre d'Information des Viandes). ALIMENTATION DES BOVINS: Rations moyennes et niveaux d'autonomie alimentaire. Centre d'Information des Viandes, Tour Mattei, 207, rue de Bercy 75012 PARIS. Publication: Décembre 2012 / Réédition : Juillet 2015.

Ministry of Ecological Transition and Territorial Cohesion of France, 2022. *National CO_2 EF for natural gas for non EU-ETS plants in 2020 (file "QA205_National CO_2 EF_Natural gas_d.xlsx").*

WSP Environment & Energy, 2011. *Update of Estimated Methane Emissions from UK Abandoned Coal Mines. Commissioned by Department of Energy and Climate Change, UK.* Available at https://uk-air.defra.gov.uk/assets/documents/reports/cat07/1107080945_1775-ghg-improvement-project-wsp-report.pdf.