United Nations

FCCC/ARR/2016/RUS

Framework Convention on Climate Change

Distr.: General
18 September 2017

English only

Report on the individual review of the annual submission of the Russian Federation submitted in 2016*

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual greenhouse gas (GHG) inventory covering emissions and removals of GHG emissions 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 required under Article 7, paragraph 1, of the Kyoto Protocol, with the inventory submission due under the Convention. This report presents the results of the individual inventory review of the 2016 annual submission of the Russian Federation, 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 17 to 22 October 2016.

* In the symbol for this document, 2016 refers to the year in which the inventory was submitted, not to the year of publication.

GE.17-16218(E)

1716218

Contents

I. Introduction[1]

1. This report covers the review of the 2016 annual submission of the Russian Federation organized by the UNFCCC secretariat, in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1, as revised by decision 4/CMP.11) (hereinafter referred to as the Article 8 review guidelines). As indicated in the Article 8 review guidelines, this review process also encompasses the review under the Convention, as described in the "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" (hereinafter referred to as the UNFCCC review guidelines) and particularly part III, "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention". The review took place from 17 to 22 October 2016, and was coordinated by Ms. Suvi Monni and Mr. Vitor Gois Ferreira (UNFCCC secretariat). Table 1 provides information on the composition of the expert review team (ERT) that conducted the review of the Russian Federation.

Table 1
Composition of the expert review team that conducted the review of the Russian Federation

Area of expertise	*Name*	*Party*
Generalist	Ms. Valentina Idrissova	Kazakhstan
	Ms. Riitta Pipatti	Finland
Energy	Mr. Ralph Harthan	Germany
	Mr. John Watterson	United Kingdom of Great Britain and Northern Ireland
IPPU	Ms. Anke Herold	Germany
	Mr. Predrag Novosel	Montenegro
Agriculture	Mr. Abdulkadir Bektas	Turkey
	Ms. Olga Gavrilova	Estonia
LULUCF	Ms. Andrea Brandon	New Zealand
	Mr. Giacomo Grassi	European Union
	Ms. Kimberly Robertson	New Zealand
Waste	Ms. Juliana Bempah	Ghana
	Mr. Kai Skoglund	Finland
	Ms. Tatiana Tugui	Republic of Moldova
Lead reviewers	Ms. Valentina Idrissova	

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

Area of expertise	*Name*	*Party*
	Ms. Riitta Pipatti	

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.

2. This report contains findings based on the assessment by the ERT of the 2016 annual submission against the Article 8 review guidelines.[2] The ERT has made recommendations to resolve those findings related to issues,[3] including issues related to problems.[4] Other findings, and if applicable, the ERT's encouragements to resolve them, are also included. The ERT's assessment takes into account that the Russian Federation does not have a quantified emission limitation or reduction commitment for the second commitment period of the Kyoto Protocol (2013–2020) as inscribed in the third column of the Annex B to the Kyoto Protocol table as contained in Annex I to decision 1/CMP.8.

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

4. Annex I shows annual greenhouse gas emissions for the Russian Federation, including totals excluding and including the land use, land-use change and forestry sector, indirect carbon dioxide emissions and emissions by gas and by sector. Annex I also contains background data related to emissions and removals from activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and additional activities under Article 3, paragraph 4, of the Kyoto Protocol, if selected for reporting, by gas, sector and activity for the Russian Federation.

5. The ERT notes that the Russian Federation's 2015 annual submission was delayed, consistent with decision 6/CMP.9, paragraph 4. As a result, the review of the 2016 annual submission is being held in conjunction with the review of the 2015 annual submission, in accordance with decision 10/CMP.11, paragraph 1. To the extent that identical information is presented in both annual submissions, the ERT has reviewed this information only once, and, as appropriate, has replicated the findings below in both the 2015 and the 2016 annual review reports.

[2] The ERT notes that issues of the territorial scope of the report have been raised in connection with the submissions by Ukraine and the Russian Federation concerning the territories of the Republic of Crimea and the city of Sevastopol (see <http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/pdf/ukraine_notes_to_nir_2016_submission.pdf> and <http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/pdf/party_statement_(aug.2016)_eng.pdf>). The ERT wishes to underline that any review of submissions that refer to or infer any data concerning territories with which any disputes might exist under international law should not in any way be construed as the official position of the ERT or the UNFCCC secretariat on the legal status of such territories. Therefore, the ERT has not reflected the implications related to the territorial scope referred to above in its review report.

[3] Issues are defined in decision 13/CP.20, annex, paragraph 81.

[4] Problems are defined in decision 22/CMP.1, annex, paragraphs 68 and 69, as revised by decision 4/CMP.11.

II. Summary and general assessment of the 2016 annual submission

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

Table 2
Summary of review results and general assessment of the inventory of the Russian Federation

Assessment				*Issue or problem ID#(s) in tables 3 and/or 5[a]*
Dates of submission	Original submission: 15 April 2016, version 2 (CRF tables), 13 October 2016 (NIR), SEF tables for CP 2 were not submitted			
	Revised submission: 13 October 2016, version 5 (CRF tables)			
	The values from the latest submission are used in this report			
Review format	Desk review			
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:			
	1.	Identification of key categories	No	
	2.	Selection and use of methodologies and assumptions	Yes	A.8, L.13
	3.	Development and selection of emission factors	Yes	E.13, I.11
	4.	Collection and selection of activity data	Yes	I.10, I.13, A.6, L.11
	5.	Reporting of recalculations	No	
	6.	Reporting of a consistent time series	No	
	7.	Reporting of uncertainties, including methodologies	No	
	8.	QA/QC	QA/QC procedures were assessed in the context of the national system (see below)	
	9.	Missing categories/completeness[b]	Yes	I.8, I.15 W.6, KL.4, KL.7
	10.	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	A.7
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?		Yes	
Supplementary	Have any issues been identified in the following areas:			

Assessment			*Issue or problem ID#(s) in tables 3 and/or 5[a]*
information under the Kyoto Protocol	1. National system:		
	(a) The 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	
	2. National registry:		
	(a) Overall functioning of the national registry	No	
	(b) Performance of the functions of the national registry and the technical standards for data exchange	No	
	3. ERUs, CERs, AAUs and RMUs and on information on discrepancies reported in accordance with decision 15/CMP.1, annex, chapter I.E, taking into consideration any findings or recommendations contained in the SIAR	Yes	G.6
	4. Matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, including any changes since the previous annual submission	No	
	5. LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol:		
	(a) Reporting in accordance with the requirements of decision 2/CMP.8, annex II, paragraphs 1–5	Yes	KL.6
	(b) The Party has demonstrated methodological consistency between the reference level and reporting on forest management in accordance with decision 2/CMP.7, annex, paragraph 14	No	
	(c) The Party has reported information in accordance with decision 6/CMP.9	No	
	(d) Country-specific information has been reported to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34	NA	
	(e) Other issues	No	
CPR	Was the CPR reported in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18?	NA	
Adjustments	Has the ERT applied an adjustment under Article 5, paragraph 2, of the Kyoto Protocol?	NA	

Assessment			*Issue or problem ID#(s) in tables 3 and/or 5*[a]
	The ERT accepts that the revised estimates submitted by the Russian Federation in its 2016 submission can replace a previously applied adjustment in the compilation and accounting database	NA	
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for the assessment of conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next review be conducted as an in-country review?	No	
Questions of implementation	Did the ERT list questions of implementation?	No	

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction unit, CP 2 = second commitment period of the Kyoto Protocol, CPR = commitment period reserve, CRF = common reporting format, ERT = expert review team, ERU = emission reduction unit, LULUCF = land use, land-use change and forestry, NA = not applicable, NIR = national inventory report, QA/QC = quality assurance/quality control, RMU = removal unit, SEF = standard electronic format, SIAR = standard independent assessment report, 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", Wetlands Supplement = *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*.

[a] The ERT identified additional issues in the energy, industrial processes and product use, agriculture, LULUCF and waste sectors and for LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol that are not specifically listed in table 2 but are included in table 3 and/or table 5.

[b] Missing categories, for which methods are provided in the Intergovernmental Panel on Climate Change (IPCC) *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, may affect completeness and are listed in annex II to this document.

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

7. Table 3 compiles all the recommendations made in the previous review report. Owing to the unique circumstances of the 2015 annual submission described in paragraph 5 above, the latest available review report was for the review of the 2014 annual submission, published on 5 June 2015. For each issue and/or problem, the ERT specified whether it believes the issue and/or problem has been resolved by the conclusion of the review of the 2016 annual submission and provided the rationale for its determination, taking into consideration the publication date of the previous review report and national circumstances.

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

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
General			
G.1	Annual submission (7, 2014) (6, 2013) (6, 2012) Adherence to UNFCCC Annex I inventory reporting guidelines	Submit the inventory by 15 April of each year	Addressing. The 2016 NIR was submitted on 13 October 2016, however the ERT notes the unique circumstances referred to in paragraph 5 above (see also ID# G.5)
G.2	Recalculations (table 3, 2014) Transparency*	Provide more detailed explanations of recalculations in the agriculture sector	Resolved. Recalculations in the agriculture sector were adequately presented in the 2016 NIR (e.g. section 5.13)
G.3	NIR (table 3, 2014) Transparency*	Provide more detailed explanations of inter-annual fluctuations	Resolved. The Russian Federation provided explanations for the fluctuations where necessary (e.g. see ID#s E.2 and A.1)
G.4	NIR (table 3, 2014) (table 3, 2013) Transparency*	Include in the NIR more detailed information on AD and EFs, and background information for the methodologies used	Resolved. The 2016 NIR is sufficiently comprehensive. For the category-specific issues, see the corresponding ID#s
Energy			
E.1	1. General (energy sector) (19, 2014) (21, 2013) (33, 2012) Comparability*	Review the use of notation keys for all categories in the energy sector and ensure the appropriate selection of notation keys for the complete time series	Addressing. The ERT considers notation keys to have been appropriately selected for the entire time series, except for aviation gasoline used in domestic aviation. In the 2016 submission, the notation key "NO" is used for CO_2, CH_4 and N_2O emissions in 1990 and 1991 and from 2002 onwards, while between 1992 and 2001 values are reported. No explanation was provided in the 2016 NIR. During the review, the Russian Federation explained that aviation gasoline was for some years included elsewhere (under jet

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			kerosene) and in other years reported based on IEA data, which in turn stem from national statistics. The ERT considers that for the years in which disaggregated data are not available and aviation gasoline is included under jet kerosene, the correct notation key is "IE" instead of "NO"
E.2	1. General (energy sector) (21, 2014) (26, 2013) Transparency*	Investigate further the underlying reasons for the discrepancies between the reference and sectoral approaches in CO_2 emissions for the entire time series for all fuels	Resolved. During the review, the Russian Federation explained that it has analysed the underlying cause of the discrepancies. The Party explained the results of the reference approach and how it differs from the sectoral approach in the 2016 NIR (section 3.2.1) and during the review, pointing out that the reference approach was estimated based on the 2006 IPCC Guidelines. Generic differences resulting from the switch to the 2006 IPCC Guidelines were also explained in the 2016 NIR (section 3.2.1). See also ID# E.11
E.3	1. General (energy sector) (22, 2014) Transparency*	Investigate the reason for the differences between the apparent consumption reported in the CRF tables and corresponding IEA data, and report accordingly in the NIR	No longer relevant. The ERT noted that explaining the differences between the inventory and IEA data in the NIR is not a mandatory requirement. During the review, the Russian Federation explained that the national statistics on fuel production, export, import and stock change were used to calculate apparent consumption in the Party's reference approach for all years. The ERT considers this approach to be adequate
E.4	Feedstocks, reductants and other NEU of fuels	Enrich the NIR with more information on the methodology and assumptions related to the calculations of the NEAT model for the estimation	No longer relevant. According to the 2016 NIR (section 3.2.2), calculation of

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
	(24, 2014) Transparency*	of country-specific fractions of carbon stored in products for NEU, and provide specific examples of detailed calculations as an appendix to the NIR	the reference approach, the NEU of fuel and "carbon excluded" is based on the 2006 IPCC Guidelines. During the review, the Russian Federation explained that the results of the NEAT model are not relevant for the new methodology
E.5	1.A. Fuel combustion-sectoral approach – liquid and gaseous fuels – CO_2, CH_4, N_2O (26, 2014) (32, 2013) (44, 2012) Accuracy*	Make an effort to gather further information on the use of coal and natural gas in order to allow for the development of country-specific CO_2 EFs for all stationary combustion categories using coal, and use these data to estimate CO_2 emissions for all stationary combustion categories	Resolved. The 2016 NIR makes reference to the recommendation made by the ERT (section 3.2.4.1) and confirms that country-specific CO_2 EFs are used for all stationary combustion categories (table 3.8)
E.6	1.A. Fuel combustion-sectoral approach – liquid fuels – CO_2 (28, 2014) Transparency*	Strengthen the QA/QC procedures related to identifying categories that emit CO_2 emissions from NEU of liquid fuels (lubricants, gas/diesel oil and liquefied petroleum gas) and include in the NIR the information on the estimation method provided in the response to the list of potential problems received during the review of the 2014 annual submission	No longer relevant. In the 2016 NIR (section 3.2.2), the Russian Federation explains that the estimation of GHG emissions resulting from the NEU of liquid fuels is now addressed in the IPPU sector (see ID# I.13), based on the approach in the 2006 IPCC Guidelines
E.7	1.A. Fuel combustion-sectoral approach – solid fuels – CO_2 (29, 2014) Transparency*	Provide information in the NIR on the definition of coal types (definition of "mineral coal" was not provided)	Resolved. The 2016 NIR (section 3.2.3.2) explains that the raw statistical data on coal use by category is available only for total "mineral coal" (translation of «каменный уголь») and brown coal, with the division by coal basin. The 2015 inventory included, for the first time, a single national CO_2 EF for combustion of "mineral coal", which was explained in the NIR to include other bituminous coal, anthracite and coking coal (section 3.2.3.2). The CO_2 EFs for coal stemming from different coal basins are presented in table 3.8 of the 2016 NIR. The ERT considers the above information to be sufficient to

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			clarify what is included under "mineral coal"
E.8	1.A.3.a Domestic aviation – liquid fuels – CO_2, CH_4, N_2O (23, 2014) (29, 2013) Transparency*	Include in the NIR information on average annual flying times and the calculated annual average flow rate for the entire time series	Resolved. The 2016 NIR includes further information on the estimation of GHG emissions from civil aviation (section 3.2.4.3). Information on flight time was provided by the Federal Air Transport Agency (Rosaviatsia), and data on hourly fuel consumption were provided by the national institute for aviation research. The 2016 NIR confirms that the estimates for hourly fuel consumption include take-off, landing and cruising by aircraft
E.9	1.A.3.e Other transportation – liquid fuels – CO_2 (32, 2014) (39, 2013) Comparability*	Report separately CO_2 emissions from pipeline transport – liquid fuel reported under other transportation in 1990 and 1991	Not resolved. During the review, the Russian Federation explained that the emissions are included elsewhere and that it plans to report emissions under other transportation in the next annual submission
E.10	1.A.2 Manufacturing industries and construction – all fuels – CO_2, CH_4, N_2O (25, 2014) Comparability*	Continue to explore ways to reallocate the emissions from autoproducers for the period 2005–2012 to the appropriate subcategories under manufacturing industries and construction	Resolved. In the 2016 NIR, section 3.2.4.2, the Party explains that in the statistics, fuel consumption by autoproducers from 2005 onwards is available only for total manufacturing industries and construction and therefore the emissions from autoproducers are reported in the category "other". The ERT accepts that the Party's energy statistics do not provide data at a level of disaggregation that would allow the Party to report in accordance with the CRF categories. Furthermore, the ERT notes that it is acceptable for a Party to report emissions as "included elsewhere" if the Party can justify the reasons

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			for its reporting
IPPU			
I.1	2.A.3 Glass production – CO_2 (42, 2014) Consistency*	Provide the necessary explanation regarding CO_2 emissions from glass production, particularly for IEF inter-annual changes, in the NIR	Resolved. The tier 1 methodology from the 2006 IPCC Guidelines was applied and there are no longer any inter-annual fluctuations in the IEF (2016 NIR, section 4.2.2)
I.2	2.B.5 Carbide production – CH_4 (43, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Enhance the QA/QC procedures for checking the completeness of the inventory (CH_4 emissions from petrol coke consumption for the production of silicon carbide were not reported in the original submission but were reported in the revised submission)	Resolved. The CH_4 emissions from silicon carbide production are reported in CRF table 2(I).A-Hs1 suggesting QC procedures have been enhanced
I.3	2.B.9 Fluorochemical production – SF_6 (40, 2014) Transparency*	Improve the QA/QC procedures for the description of recalculations in the NIR (recalculations for this category were indicated in the NIR even though they had not occurred)	Resolved. Recalculations are reported in the 2016 submission only where they occurred (e.g. section 4.3.4 of the 2016 NIR) suggesting QC procedures have been improved
I.4	2.C.1 Iron and steel production – CO_2 (35, 2014) Transparency*	Include in the NIR information on significant changes in IEFs (e.g. the CO_2 IEF for pig iron) since 2011 due to the implementation of 10 joint implementation projects on iron production efficiency	Not resolved. The 2016 NIR does not include information on the CO_2 IEF changes since 2011 (see also ID# I.10)
I.5	2.C.1 Iron and steel production – CO_2 (36, 2014) Not an issue	Change the notation key for CO_2 emissions from coke production from "NE" to "IE" and improve QA/QC procedures	No longer relevant. The 2006 IPCC Guidelines changed the allocation and coke production is no longer a subcategory of iron and steel production (2.C.1) in the CRF tables. The allocation of CO_2 emissions from coke production under the category manufacture of solid fuels and other energy industries by the Russian Federation is consistent with the 2006 IPCC Guidelines
I.6	2.C.1 Iron and steel production – CH_4	Use appropriate units to increase the transparency and comparability of the reporting (Mt was	Resolved. AD are reported in kt and CH_4 IEFs are reported

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
	(37, 2014) Comparability*	reported instead of kt)	in t CH_4/t
I.7	2.C.3 Aluminium production – PFCs (44, 2014) (50, 2013) (66, 2012) Not an issue	Use the appropriate notation keys for each species of PFC in the CRF tables ("NO" should be used instead of "NE" for C_3F_8, C_4F_{10}, c-C_4F_8, C_5F_{12} and C_6F_{14})	No longer relevant. In the CRF table 2(II), the Russian Federation did not report any value or notation key for other PFCs except CF_4 and C_2F_6 which are the only PFC species mentioned in the 2006 IPCC Guidelines for aluminium production
Agriculture			
A.1	3. General (agriculture) (48, 2014) Transparency*	Improve the transparency of the reporting by providing additional information that supports the use of country-specific EFs and that describes the reasons for the fluctuations in the trend of IEFs	Resolved. The Russian Federation has improved the transparency of its reporting. The 2016 NIR provides additional information to explain the use of EFs for some categories, and clarifies GHG emission and IEF trends (e.g. see ID#s A.3 and A.4). However, additional information for some categories is still missing (e.g. see ID# A.5)
A.2	3. General (agriculture) (49, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Improve the consistency of the reporting between the CRF tables and the NIR and establish better QA/QC activities in the agriculture sector	Resolved. No major discrepancies between the CRF tables and the NIR were found suggesting QA/QC activities have been improved
A.3	3.A.3 Swine – CH_4 (52, 2014) Transparency*	Improve the transparency of the reporting and include in the NIR data-supported calculations for the CH_4 EF for enteric fermentation for swine, and describe the reasons for its change over the reporting period	Resolved. The 2016 NIR includes additional information on parameters used in the evaluation of the CH_4 EF for enteric fermentation for swine and explains the reasons for its fluctuations over the entire time series (section 5.3.2)
A.4	3.C Rice cultivation – CH_4 (55, 2014) Accuracy*	Collect data on the type of organic amendments applied and transparently explain the practice of fertilizer application during rice cultivation	Resolved. The Russian Federation has improved the methodology for this category, including the use of data on the type of organic amendments applied in the

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			main rice growing area of the country. The 2016 NIR (section 5.6) contains information on the types of organic amendments and fertilizers applied onto rice fields, the agricultural practices used to grow rice and the cultivation period for rice
A.5	3.D Direct and indirect N_2O emissions from agricultural soils – N_2O (54, 2014) Transparency*	Improve the transparency of the reporting and include a clearer description of the derivation of the N_2O EF from the cultivation of histosols by providing all relevant supporting information, including the period of measurement, a description of the process by which this EF is derived and a description of the source	Addressing. The 2016 NIR (section 5.7.2) references a study that evaluated the N_2O EF from cultivated organic soils in the Russian Federation and provides reasons for the difference between a country-specific EF and the IPCC default EF. Nevertheless, the NIR does not include supporting information on the procedure used to derive the country-specific EF (e.g. representativeness, including the period of measurement, areas examined and climatic conditions during the study)
LULUCF			
L.1	4. General (LULUCF) (59, 2014) (63, 2013) Transparency	Make further revisions to the structure of chapter 7.2 of the NIR, concerning the methodologies used for estimating carbon stock changes, so that it is organized by individual carbon pools within individual land-use categories	Resolved. Carbon stock change methodologies are organized by carbon pool within the forest land remaining forest land subcategory in the 2016 NIR (section 6.4.1.1); however, this has not been done for the other land use subcategories (e.g. land converted to forest land (section 6.4.1.2) and land converted to settlements (section 6.4.5.2)). However, the ERT noted that there is no explicit requirement in the UNFCCC Annex I inventory reporting guidelines regarding how the reporting on carbon pools should be arranged and considered that the current

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			organization of the reporting is sufficiently transparent
L.2	4. General (LULUCF) (60, 2014) Accuracy	Continue efforts in improving the accuracy of the land representation matrix by detecting actual land-use changes instead of net changes	Resolved. The ERT noted that the Party reports the actual land-use changes in CRF tables 4.A–4.F. In response to the provisional main findings by the ERT, the Russian Federation explained that it has continued these efforts and that the land-use change matrix has been refined for every year from 1990 onwards
L.3	4. General (LULUCF) (61, 2014) (65 and 67, 2013), (96, 2012) Accuracy	Continue to strengthen the QA/QC procedures in the LULUCF sector, paying particular attention to checking that any unexpected trends in AD relating to managed and unmanaged lands and emissions across the time series are explained in the NIR	Resolved. This issue was resolved in the 2015 annual submission (see document FCCC/ARR/2015/RUS). However, the ERT considered that the issue reoccurred in the 2016 annual submission (see ID# L.11)
L.4	4. General (LULUCF) (61, 2014) Transparency	Continue to strengthen the QA/QC procedures in the LULUCF sector, paying particular attention to checking that references in the NIR are correct and consistent with the CRF tables	Not resolved. Inconsistencies were observed between 2016 NIR table 6.6 and CRF table 4.1. For example, table 6.6 reports total area of managed forest land of 664,485.8 kha in 1 January 2014, while CRF table 4.1 reports an initial area of 664,521.25 kha managed forest land (see also ID#s L.11 and L.12)
L.5	4.A.2 Land converted to forest land – CO_2 (69, 2014) Not an issue	Strengthen the QA/QC procedures for further checking that the reported AD are correct and consistent between the CRF tables and the NIR	No longer relevant. The ERT considers this issue is covered by issue ID# L.4 above
L.6	4.B.1 Cropland remaining cropland – CO_2 (63, 2014) Accuracy	Continue efforts to develop and verify country-specific EFs for the estimation of carbon stock accumulation and losses in the above-ground biomass pool	Resolved. The Russian Federation explained in its response to the provisional main findings by the ERT that the development of country-specific EFs would necessitate studies in different parts of the country, which would require significant

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			resources and take several years. The Party also explained that the expected impact of the use of any country-specific EFs for carbon stock changes in the biomass pool would be minimal compared with the overall carbon balance in cropland remaining cropland. The ERT considered the decision tree in figure 4.1 of the 2006 IPCC Guidelines (volume 1) and concluded that the Party's use of default EFs for the biomass pool is acceptable
L.7	4.B.1 Cropland remaining cropland – CO_2 (64, 2014) Accuracy	Improve the accuracy of area estimates for organic soils (1990 area was estimated based on data for 1980 and the years up to 2007 (first year with statistical data) were interpolated)	Resolved. In the 2016 NIR (section 6.4.2.1.2) and in its response to the provisional main findings by the ERT, the Russian Federation explained that the accuracy of area estimates for organic soils has been improved for the period 1990–2005
L.8	4.C.2 Land converted to grassland – CO_2 (66, 2014) Transparency	Improve the transparency of the reporting and check the consistency of EF values (DOM per area) in the CRF tables and the NIR	Resolved. Although DOM per area is not reported in the 2016 NIR, the data reported on carbon stock changes in DOM and area of land converted to grassland are consistent in CRF table 4.C and the 2016 NIR (section 6.4.3.2)
L.9	4.C.2 Land converted to grassland – CO_2 (67, 2014) Comparability	Continue to improve the comparability and transparency of the inventory by reporting the carbon stock changes in organic and mineral soils separately in the CRF tables	Resolved. Organic and mineral soils are now reported separately for this category in the 2016 submission (CRF table 4.C)
L.10	4.E.2 Land converted to settlements – CO_2 (68, 2014) (70, 2013) (102, 2012) Accuracy	Improve the accuracy of the reported estimates for carbon stock change in soils	Resolved. In the 2016 NIR (section 6.4.5.2.1.2) and in its response to the provisional main findings by the ERT, the Russian Federation explained that improved emission estimates are now reported for forest land converted to

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
			settlements for mineral soil organic carbon
Waste			
W.1	5. General (waste) (74, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Include more specific results of the QC measures undertaken	Not resolved. The relevant chapter on QC measures undertaken for the waste sector is missing in the 2016 NIR
W.2	5.A Solid waste disposal on land – CH_4 (75, 2014) (74, 2013) (109, 2012) Accuracy*	Apply the IPCC tier 2 methodology to estimate CH_4 emissions from industrial solid waste	Resolved. The Russian Federation reported in the 2016 NIR (section 7.2.1) the CH_4 emissions from industrial waste, estimated based on the first-order decay method in the 2006 IPCC Guidelines
W.3	5.A Solid waste disposal on land – CH_4 (76, 2014) (76, 2013) Transparency*	Improve the classification of waste from parks and gardens, taking into account its composition and origin	Resolved. The Russian Federation provided an explanation of the classification of waste from parks and gardens in the 2016 NIR (section 7.2.2), and the ERT considers the classification appropriate
W.4	5.D.1 Domestic wastewater – N_2O (79, 2014) Transparency*	Provide an additional explanation of how time-series consistency was maintained for the AD used in the national inventory, or otherwise review the available data sets on protein consumption and consider ways in which their use might be amended to improve consistency across the time series	Resolved. The Russian Federation provided updated information on AD and parameters used in accordance with the methodology in the 2006 IPCC Guidelines in the 2016 NIR (table 7.14). The Party also explained in section 7.5.2.2 that FAO data for protein consumption per capita and population were used for the period 1992–2011, and thereafter the data were extrapolated based on the Russian Federal State Statistics Service (Rosstat) data on protein consumption per capita and population
W.5	5.D.2 Industrial wastewater – CH_4 (78, 2014)	Use the notation key “IE” instead of “NE” for AD for CH_4 emissions from sludge under the industrial wastewater category in the CRF tables, and include	No longer relevant. The ERT noted that the CRF tables, in accordance with UNFCCC Annex I inventory reporting

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
	Not an issue	the relevant background information in the NIR	guidelines, no longer include separate entries for total organic product of wastewater and sludge
KP-LULUCF			
		There were no recommendations related to KP-LULUCF in the previous review report	

Abbreviations: AD = activity data, CRF = common reporting format, DOM = dead organic matter, EF = emission factor, ERT = expert review team, FAO = Food and Agriculture Organization of the United Nations, GHG = greenhouse gas, IE = included elsewhere, IEA = International Energy Agency, IEF = implied emission factor, IPCC = Intergovernmental Panel on Climate Change, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NE = not estimated, NEAT = non-energy accounting tables, NEU = non-energy use, NIR = national inventory report, NO = not occurring, QA/QC = quality assurance/quality control, 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", 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) where the issue was raised. Issues are further classified as defined in decision 13/CP.20, annex, paragraph 81. In the review of the supplementary information reported in accordance with Article 7, paragraph 1, of the Kyoto Protocol, the ERT has applied the classification in decision 22/CMP.1, annex, paragraph 69, in conjunction with decision 4/CMP.11.

[b] An asterisk is included next to each issue type for all issues that are also problems, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to a question of implementation.

[c] The review of the 2016 annual submission is being held in conjunction with the review of the 2015 annual submission, and as such, the 2015 annual review report was not available at the time of this review. Therefore, the recommendations reflected in table 3 are from the 2014 annual review report. For the same reason, the year 2015 is excluded from the list of years in which the issue has been identified.

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

8. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues included in table 4 have been identified in three successive reviews, including the review of the 2016 annual submission of the Russian Federation, and have not been addressed by the Party.

Table 4
Issues identified in three successive reviews and not addressed by the Russian Federation

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
General		
	No such general issues were identified	
Energy		
E.9	Report separately CO_2 emissions from pipeline transport – liquid fuel reported under other transportation in 1990 and 1991	3 (2013–2015/2016)

ID#	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[a]
IPPU		
	No such issues for the IPPU sector were identified	
Agriculture		
	No such issues for the agriculture sector were identified	
LULUCF		
	No such issues for the LULUCF sector were identified	
Waste		
	No such issues for the waste sector were identified	
KP-LULUCF		
	No such issues for KP-LULUCF activities were identified	

Abbreviations: IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry.

[a] The review of the 2016 annual submission is being held in conjunction with the review of the 2015 annual submission. As the reviews of the 2015 and 2016 annual submissions are not "successive" reviews, but are rather being held in conjunction, for the purpose of counting successive years in table 4, 2015/2016 is considered as one year. The ERT noted that this table 4 is the same as that in the 2015 annual review report for the Russian Federation, modified to reflect the combined 2015/2016 review.

V. Additional findings made during the 2016 technical review

9. Table 5 contains findings made by the ERT during the technical review of the 2016 annual submission of the Russian Federation that are additional to those identified in table 3 above.

Table 5
Additional findings made during the 2016 technical review of the annual submission of the Russian Federation

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
General			
G.5	QA/QC and verification	During the 2014 review, the ERT found a large number of errors in several sectors reflecting potential deficiencies in the QC procedures (see table 3 in document FCCC/ARR/2014/RUS). Moreover, the 2013 review report noted some inconsistencies within the NIR, for example, between information provided in section 1.6 and annex 5 (see table 3 in document FCCC/ARR/2013/RUS), and included a recommendation that the Russian Federation improve its verification and QC procedures in order to minimize inconsistencies and errors. During the present review, the Party explained that enhanced QC procedures were used for the 2016 submission in response to the previous recommendations and also because of bugs in the CRF Reporter software. However, the Party also explained that these enhanced procedures led to the late submission of the NIR (submitted on 13 October 2016) The ERT recommends that the Russian Federation adjust its QA/QC plan to ensure timely submission of the NIR	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
G.6	National registry	The ERT notes in the SIAR that the Russian Federation does not report information on the accounting of Kyoto Protocol units in the second commitment period of the Kyoto Protocol, even though its registry was connected to the international transaction log until 30 December 2015. The ERT also notes that according to decision 3/CMP.11, paragraph 14, a Party included in Annex I to the Convention without a quantified emission limitation or reduction commitment inscribed in the third column of the Annex B to the Kyoto Protocol table as contained in Annex I to decision 1/CMP.8 shall continue to provide relevant information on its national registry, including information on the units in its registry, by submitting the standard electronic format tables in conjunction with its annual inventory submission for the second commitment period, if its registry is connected to the international transaction log at any time during the relevant calendar year The ERT reiterates the recommendation made in the SIAR that the Party include 2014 and 2015 standard electronic format tables for the second commitment period of the Kyoto Protocol in its annual submission	Yes. Completeness*
Energy			
E.11	1. General (energy sector)	The ERT notes that the difference between the reference and sectoral approaches for CO_2 emissions is high for some years and fluctuates over the time series (see ID# E.2). More specifically, the ERT notes from CRF table 1.A(c) that the difference between the reference and sectoral approaches for	Not an issue

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		CO_2 emissions is still very high and fluctuates in the period 1990–2014 (all fuels: –3.62 to 7.27%; liquid fuels:–7.76 to 12.06%; solid fuels: –9.91 to 21.63%; and gaseous fuels: –2.01 to 8.52%). In 2014, the differences between the two approaches for CO_2 emissions were –0.93% for all fuels, 1.00% for liquid fuels, –6.85% for solid fuels and 3.77% for gaseous fuels. An explanation for these fluctuations in the time series is not provided in the 2016 NIR	
		The ERT encourages the Russian Federation to provide an explanation for the fluctuating difference in CO_2 emissions between the sectoral and reference approaches in the NIR	
E.12	1.A.3.a Domestic aviation – liquid fuels – CO_2, CH_4, N_2O	Based on the 2016 NIR (e.g. section 3.2.4.3) and information provided by the Russian Federation during the review, the ERT understands that fuel consumption for domestic and international civil aviation in the GHG inventory is estimated using a bottom-up approach (based on flying times and flow rates) (see ID# E.8). However, the ERT considers it unclear how the sum of aviation fuels for domestic and international civil aviation corresponds to the national energy balance. During the review, the Party explained that the difference between the fuel consumption estimated based on flying times and flow rates for domestic and international aviation and the overall fuel consumption considered as aviation fuel in the energy balance is calculated, and corresponding emissions are reported under the category other (1.A.5). Based on this information, the ERT concludes that no overestimation or underestimation of emissions has occurred	Yes. Transparency*
		The ERT recommends that the Russian Federation explain in the NIR that fuel use for domestic and international civil aviation is estimated using a bottom-up approach (based on flying times and flow rates) and that the difference between the fuel consumption estimated by this approach and the overall fuel consumption considered as aviation fuel in the energy balance is calculated, and corresponding emissions are reported under the category other (1.A.5)	
E.13	1.B.2.b Natural gas – gaseous fuels – CO_2, CH_4	The ERT notes significant recalculations of CO_2 and CH_4 emissions from natural gas between the 2015 and the 2016 submissions. In the 2016 submission, CH_4 emissions reported in CRF table 1.B.2 for category 1.B.2.b (natural gas) are 5,822.99 kt CH_4 in 2013, while in the 2015 submission, the corresponding emissions are more than twice that (12,699.34 kt CH_4). CO_2 emissions declined for 2013 from 254.19 kt CO_2 in the 2015 submission to 194.50 kt CO_2 in the 2016 submission. When reviewing the 2016 NIR, the ERT was unable to find in the section on fugitive emissions an explanation for why these recalculations were carried out	Yes. Accuracy*
		During the review, the Russian Federation explained that the recalculations were carried out because in the 2016 submission, developed country EFs from the 2006 IPCC Guidelines (volume 2, table 4.2.4) for natural gas operations were used, while in the 2015 submission, developing country EFs were used. The Party pointed out the fact that a justification for the choice of EFs is included in the	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		2016 NIR (pages 86–88). The Russian Federation also explained that it is currently undertaking research into the development of national emission parameters for the oil and gas industry, the outcomes of which are expected to be available in 2017	
		The ERT finds the explanation for the recalculations satisfactory, including the corresponding rationale included in the 2016 NIR for using developed country EFs, while noting that although today's EFs plausibly correspond to state-of-the-art technology, this may have changed during the time series since 1990, with lower standards potentially being applicable in the early years after the dissolution of the Union of Soviet Socialist Republics. The ERT commends the Russian Federation for conducting a study on national emission parameters for the oil and gas industry	
		The ERT recommends that the Russian Federation consider the results of the research into fugitive CO_2 and CH_4 emissions from natural gas and develop national EFs for the entire time series or, if that cannot be done in time for the next annual submission, include in the NIR information on the progress in development of the national EFs	
IPPU			
I.8	2.A.3 Glass production – CO_2	The emissions from glass production do not include emissions from glass wool production. The ERT notes that glass wool is produced in the Russian Federation (e.g. at Knauf Insuleishn Stupino, Novgorod glass fibre plant, P-D Tatneft-Alabuga Steklovolokno, Tverstekloplastic PJSC, Steklovoloknp PJSC and Steklonit-Eksport). During the review, the Party confirmed that emissions in the category are underestimated	Yes. Completeness*
		The ERT recommends that the Russian Federation contact glass wool and glass fibre manufacturers to collect data for glass wool production, estimate the emissions and report them in this category for the entire time-series	
I.9	2.B.1 Ammonia production – CO_2	For the key category ammonia production, the 2016 NIR states that a country-specific carbon content of 14.836 kg/GJ for natural gas is used (section 4.3.2). However, a reference for this EF is not included in the NIR. During the review, the Russian Federation provided the reference	Yes. Transparency*
		The ERT recommends that the Russian Federation include in the NIR a reference for the country-specific carbon content of natural gas	
I.10	2.C.1 Iron and steel production – CO_2	The ERT notes that the CO_2 IEF for pig iron dropped considerably from 1.51 t/t in 2011 to 1.36 t/t in 2012 and 1.26 t/t in 2013 and 2014 (see also ID# I.4). The 2016 NIR provides an explanation for the reduced use of coke in the iron and steel industry, but this explanation addresses only the years 2000 to 2004 (table 4.38). During the review, the Russian Federation explained that the drop in the IEF seems to be due to technological advances in the industry. In addition, the Party explained that the	Yes. Accuracy*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue[a] and/or a problem[b]? If yes, classify by type
		coke consumption in the iron and steel industry is currently considerably overestimated, but that data collection of coke consumption from 46 facilities would be resource demanding The ERT recommends that, in addition to explaining in the NIR the decrease in CO_2 IEF for pig iron in recent years as recommended in issue ID# I.4, the Russian Federation include the collection of improved activity data for coke consumption in iron and steel production as an activity in the inventory improvement plan (recognizing that such data collection will take time and may not be possible to implement), and report on the planned improvement in the NIR	
I.11	2.C.1 Iron and steel production – CO_2	For the estimation of emissions from category 2.C.1 (iron and steel production), general country-specific parameters have been used (e.g. for the carbon content of coke and of iron and steel). The ERT notes that monitoring reports of the JI projects include recent measurement data of such parameters, but these have not been used for the inventory (see also ID# I.4) The ERT recommends that the Russian Federation use recent country-specific parameters that have been measured in JI projects in iron and steel plants for a verification of the appropriateness of the current parameters used in the inventory. If the verification indicates that these parameters have changed considerably compared to those currently used in the inventory, the ERT recommends that the Party elaborate a plan (as part of the inventory improvement plan) to update and improve these parameters reflecting improved efficiencies of the plants, and that the Party report on this activity in its NIR	Yes. Accuracy*
I.12	2.C.3 Aluminium production – PFCs	The PFC emission estimates were calculated in this key category using the IPCC tier 2 methodology with IPCC default slope coefficients and weight fractions of the ratio C_2F_6 to CF_4. The ERT noted from table 4.44 of the 2016 NIR that for some plants, measured plant-specific parameters are available that show considerable differences from the default parameters. During the review, the Russian Federation explained that it was not possible to implement the tier 3 methodology using data from JI project reports because time-series consistency could not be ensured and also because of large variations in the plant-specific data The ERT recommends that the Russian Federation add an explanation to table 4.44 in the NIR explaining why measured plant-specific parameters are not used in the inventory. The ERT encourages the Russian Federation to consider how plant-specific data could be collected as some of the available data indicate that moving to a tier 3 methodology could change the emission estimates substantially	Yes. Transparency*
I.13	2.D Non-energy products from fuels and solvent use –	In CRF table 1.A(d) the Russian Federation reports, for 2014, that 106,672.99 kt CO_2 of "CO_2 emissions from the NEU reported in the inventory" are reported under category 2.D (non-energy products from fuels and solvent use). However, the CO_2 emissions reported under category 2.D for	Yes. Accuracy*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
	CO_2	2014 are only 1,502.51 kt CO_2 in CRF table 2(I).A-Hs2 The ERT recommends that the Russian Federation investigate, and as appropriate, resolve the discrepancy in reporting the CO_2 emissions from the NEU of fuels excluded from the energy sector (indicated as reported under non-energy products from fuels and solvent use in CRF table 1.A(d)) and those actually reported in the inventory in the IPPU sector under category 2.D (non-energy products from fuels and solvent use in CRF table 2(I).A-Hs2). The ERT further recommends that the Party explain the reporting of NEU for the category 2.D in the NIR	
I.14	2.D Non-energy products from fuels and solvent use – CO_2	The Russian Federation reports "NE" for CO_2 emissions from solvent use, road paving with asphalt and asphalt roofing, with the rationale (reported in CRF table 9) that no IPCC method is provided for these subcategories. The ERT notes that the 2006 IPCC Guidelines in fact provide methods in chapters 5.4 and 5.5 of volume 3 and in box 7.2 in chapter 7 of volume 1. However, the ERT also notes that CO_2 emissions from these categories are indirect emissions, reporting of which is not mandatory unless the Party has reported them in earlier submissions, which is not the case for the Russian Federation The ERT encourages the Russian Federation to consider the additional and updated information in the 2006 IPCC Guidelines related to the estimation of CO_2 emissions from solvent use, road paving with asphalt and asphalt roofing, and to estimate these emissions	Not an issue
I.15	2.E Electronics industry – PFCs	Emissions from this category are calculated at the national level in accordance with the IPCC good practice guidance tier 1 methodology for the gases CF_4, C_3F_8 and c-C_4F_8. The 2016 NIR (section 4.6.2) states that the methods provided in the 2006 IPCC Guidelines were not used because AD are not available in the format needed to apply them. The ERT notes that the number of GHGs in the 2006 IPCC Guidelines has been expanded compared with the IPCC good practice guidance to include, for example, CH_2F_2, C_5F_8, C_4F_6 and C_4F_8O. F_2 and COF_2 have also been added because, even though they are not GHGs, CF_4 may be formed during their use. In addition, the 2006 IPCC Guidelines contain guidance for processes not covered by the IPCC good practice guidance, such as liquid crystal display manufacturing, photovoltaic cell manufacturing and the use of heat transfer fluids in the semiconductor industry. During the review, the Russian Federation explained that at present there is no process in place to identify any new chemicals not previously used by the electronics industry. The Party added that federal statistics contain no useful information on this matter, so it was concluded that a resource-intensive study would be needed to identify new chemicals and collect the necessary AD to implement the methodology provided in the 2006 IPCC Guidelines. The Party also explained that a relatively small amount of emissions could be expected for this category	Yes. Completeness*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		The ERT recommends that the Russian Federation collect the AD needed to implement the methodology provided in the 2006 IPCC Guidelines for this category, and report the emissions accordingly. The ERT also recommends that the Russian Federation report in the NIR on progress in the implementation of AD collection	
I.16	2.E Electronics industry – NF_3	The ERT notes that according to the 2016 NIR (section 1.6, titled "General assessment of the completeness"), emissions of NF_3 are not quantitatively assessed because these emissions were absent or present in very small amounts throughout the inventory period. These emissions are reported using the notation key "NO" in CRF table 2(II). During the review, the Russian Federation explained that it did not find any evidence of the use of NF_3 in the electronics industry in the country and for this reason, the notation key "NO" was used instead of "NE". The ERT concludes that the use of the notation key "NO" is appropriate	Yes. Transparency*
		The ERT recommends that the Russian Federation include in the NIR a statement that it has not identified any evidence of the use of NF_3 in the electronics industry and that the emissions are therefore reported using the notation key "NO"	
Agriculture			
A.6	3. General (agriculture) – CH_4, N_2O	The ERT notes that the Russian Federation used the population number of fur-bearing animals as of 1 January for the average annual population of fur-bearing animals (section 5.3.2 of the 2016 NIR), which is not in line with the 2006 IPCC Guidelines (volume 4, chapter 10.2) as it does not account for the number of animals born, grown and slaughtered during the year. During the review, the Party stated that the population could be considered as representative of the average annual fur-bearing animal population because the reproduction cycle of most fur-bearing animal categories is more than one year. However, the ERT considers that a typical lifespan of fur-bearing animals grown for fur is less than one year and that pelting usually takes place in the late autumn. Therefore, the ERT did not agree with the explanation provided by the Party	Yes. Accuracy*
		The ERT recommends that the Russian Federation revise its estimate of the average annual population of fur-bearing animals by taking into account the number of animals produced annually and the number of animals born during the year, in accordance with the 2006 IPCC Guidelines (volume 4, chapter 10.2)	
A.7	3.B.4 Other livestock – CH_4	The ERT notes that the Russian Federation did not estimate CH_4 emissions from ostrich manure management (CRF table 3.B(a)). During the review, the Party provided AD, which were available only for 2006 (when a national farm census was conducted). The Party also provided a preliminary estimation of CH_4 emissions from ostrich manure management using the AD for 2006 and the IPCC default EF (2006 IPCC Guidelines, volume 4, table 10A-9). The emissions amounted to 27,783 kg	Yes. Transparency*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		CH_4 in 2006 (0.69 kt CO_2 eq), which is about 0.000027% of the national total CO_2 eq emissions in 2006 without LULUCF, and is less than the threshold included in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines	
		The ERT recommends that the Russian Federation provide in its NIR the calculation for CH_4 emissions from ostrich manure management as provided to the ERT during the review (i.e. using the AD for 2006 and the default EF from the 2006 IPCC Guidelines, volume 4, table 10A-9) to justify the exclusion of CH_4 emissions from ostrich manure management as an insignificant source	
A.8	3.B Manure management – CH_4, N_2O	The Russian Federation used an MCF of 10% to estimate CH_4 emissions from liquid manure management systems (CRF table 3.B(a)). The Party states in the 2016 NIR (section 5.4.2) that manure stored in liquid manure management systems is not usually stirred, which allows a crust cover to develop on the top of the storage system. The ERT notes that an MCF of 10% for liquid manure with natural crust cover is in accordance with the 2006 IPCC Guidelines (volume 4, table 10.17) in cool conditions, but noted that the Party did not provide any justification for the assumption that the manure is not stirred. During the review, the Russian Federation stated that the MCF was based on the assumption that special equipment is needed for stirring of liquid manure and that there is no evidence that such equipment has been supplied and used in the country. The ERT notes from the NIR (section 5.5.1.2) that the Party estimated N_2O emissions from liquid manure using the IPCC default EF (0.005 kg N_2O-N/kg N) which is applicable for liquid systems with a natural crust cover	Yes. Accuracy*
		The ERT recommends that the Russian Federation confirm the assumption that liquid manure is not usually stirred, for example by conducting a small-scale farm survey or asking national agricultural organizations to advise on the appropriateness of the assumption. In the event that the assumption cannot be confirmed, the ERT recommends that the Russian Federation apply MCF value of 17% (default value in 2006 IPCC Guidelines volume 4, table 10.17 for liquid systems without natural crust cover) in order to ensure that CH_4 emissions from manure management are not underestimated and use an N_2O EF which is applicable to liquid manure management systems without a natural crust cover	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
A.9	3.B Manure management – N_2O	The ERT noted that the total amount of N generated by some livestock categories (in 1990 for swine; in 2012 for dairy and non-dairy cattle, swine and sheep; in 2013 for dairy cattle; and in 2014 for fur-bearing animals) in CRF table 3.B(b) does not correspond to the amount of N calculated as Nex multiplied by the population value in the same table. For example, for 1990 for swine, 843,460,507.12 kg N is reported as total N excreted but 843,460,512.40 kg N is the result of the calculation of Nex per head multiplied by the reported population. During the review, the Russian Federation explained that the difference results from different rounding of Nex values in the CRF table and a Microsoft Excel spreadsheet	Yes. Accuracy*
		The ERT recommends that the Russian Federation ensure that the total amount of N generated for livestock categories reported in CRF table 3.B(b) corresponds to the amount of N calculated as Nex multiplied by the population value in the same table	
A.10	3.D.a.1 Inorganic N fertilizers – N_2O	The Russian Federation stated in its 2016 NIR (section 5.7.2) that estimation of N_2O emissions from synthetic fertilizers applied onto agricultural soils was based on a country-specific N_2O EF, statistical data on the amount of synthetic fertilizers applied and technological maps of the cultivation of agricultural crops. The ERT noted that the technological maps referred to in the NIR are dated 30–40 years ago and it is not evident how these maps reflect the current cultivation of crops in the country. During the review, the Party stated that the estimation of N_2O emissions from synthetic fertilizers is in fact based only on data on the amount of synthetic fertilizers applied and the country-specific N_2O EF. As the technological maps were not used in the estimation, the Party agreed that the reference to them is redundant	Yes. Transparency*
		The ERT recommends that the Russian Federation remove from the NIR the reference to the outdated technological maps that are not used in the estimation of emissions from synthetic fertilizers	
A.11	3.D.a.3 Crop residues – N_2O	The ERT notes that section 5.7 of the 2016 NIR does not include any information on the subtraction of the amount of above-ground crop residues used as a bedding material in animal husbandry from the total amount of crop residues left on the fields. During the review, the Russian Federation stated that the amount of crop residues used for bedding was removed from the total amount of crop residues left on the fields	Yes. Transparency*
		The ERT recommends that the Russian Federation include in the NIR an explanation of the methodology used to estimate the total amount of above-ground crop residues removed from the fields and excluded from the estimation of N_2O emissions from crop residues	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
LULUCF			
L.11	4. General (LULUCF)	Previous review reports included a recommendation that the Russian Federation strengthen the QA/QC procedures in the LULUCF sector, paying particular attention to checking that any unexpected trends in AD relating to managed and unmanaged lands and emissions across the time series are explained in the NIR (see ID# L.3). The ERT considers this issue to have been resolved in the 2015 annual submission of the Party and therefore did not list it as a recurring issue in table 3 above. However, in the 2016 annual submission, the ERT identifies again inexplicable changes from managed to unmanaged lands in table 6.6 of the NIR. For example, table 6.6 reports that the total area of managed forest land decreased from 664,485.8 kha in 1 January 2014 to 664,297.4 kha in 1 January 2015 (i.e. a loss of 188.4 kha), however, the sum of changes to and from other land use categories was reported as 78.8 kha (table 6.6), while CRF table 4.1 reports an initial area of 664,521.25 kha managed forest land and a final area of 664,874.49 kha for 2014, which is a net change of 353.24 kha (i.e. an increase rather than a decrease) The ERT recommends that the Russian Federation strengthen the QA/QC procedures in the LULUCF sector, paying particular attention to checking that any unexpected trends in AD relating to managed and unmanaged lands and emissions across the time series are explained in the NIR	Yes. Accuracy
L.12	Land representation	The ERT considers that the reporting in CRF table 4.1 by the Russian Federation is not correct because it includes cumulative, rather than annual, land-use changes. The purpose of this table is not to duplicate information already included in CRF tables 4.A–4.F on cumulative land-use changes over 20 years, but to add new information on the annual values of changes, which were not available in the CRF tables used before the implementation of the UNFCCC Annex I inventory reporting guidelines. During the review, the Party agreed with the ERT's observation. The ERT notes that resolving this issue will also help to address ID# L.4 The ERT recommends that the Russian Federation correct its reporting in CRF table 4.1 by presenting in the table annual, rather than cumulative, land-use changes	Yes. Transparency
L.13	Land representation	The ERT notes from the information in section 6.3 of the 2016 NIR that the Russian Federation applied different national conversion periods for different land-use changes (e.g. 50 years for cropland converted to forest land or grassland, and the default 20 years for other land-use changes). Furthermore, during the review, the Party explained that conversions prior to 1990 for land converted to forest land and for cropland converted to grassland are not estimated The ERT recommends that the Russian Federation include in the NIR an explanation of and a justification for the use of different conversion periods (50 years for cropland converted to forest land or grassland, and 20 years for other land-use changes), and include the impact of pre-1990	Yes. Accuracy

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		conversions for land converted to forest land and cropland converted to grassland in the reported emissions and removals	
L.14	4.A Forest land – CO_2	The ERT notes that verification activities in the LULUCF sector may include a comparison of the inventory data with other data sets to increase the confidence in the overall levels and trends of reported GHG emissions and removals. The ERT also notes that a comparison of the 2016 annual submission with the forest resources assessment report that the Russian Federation submitted to FAO in 2015 reveals significant differences in data on the carbon stock change in forest land. Specifically, in the forest resources assessment reports there were essentially no carbon stock changes from 1990 to 2015 (taking into account the change in forest area over time) – that is, a sink equal to zero – while the 2016 annual submission reports an average sink for forest land of about 500 Mt CO_2/year from 1990 to 2014, equivalent to an increase of almost 15% in the carbon stock per unit area. The ERT further notes that the difference in forest area cannot explain fully this large difference. During the review, the Russian Federation explained that it is aware of the difference and inconsistencies between the two reports, and that a working group has been established to harmonize the reporting of the Party to the UNFCCC, including its Kyoto Protocol, and to FAO. The harmonization work could take several years, but it is expected that the next forest resources assessment report in 2020 would contain new and correct estimates of forest carbon stocks in the Russian Federation. The ERT commends the Party for taking action on this issue The ERT encourages the Russian Federation to prioritize this issue in the planned improvements to the inventory in order to ensure consistency in the reporting of forest carbon stock changes to FAO and to the UNFCCC and increase the confidence in the magnitude of the forest carbon sink in the Russian Federation	Not an issue
Waste			
W.6	5.C.2 Open burning of waste – CO_2, CH_4, N_2O	The ERT notes that in the 2016 NIR (section 7.4.1), the Russian Federation explained the methods used for the estimation of CO_2, CH_4 and N_2O emissions from waste incineration and sludge incineration (included in the energy sector), whereas emissions from open burning of waste were neither reported nor explained in the NIR (notation key "NO" was used in CRF table 5.C, except for 2014 for which no notation key was reported). During the review, the Party confirmed that the open burning of waste (including waste from agriculture) is prohibited in the Russian Federation by legislation and explained that it does not have any information to show that this practice occurs. The Party also explained that it plans to carry out research into the possibility of the occurrence of the open burning of waste, and results, if relevant, will be incorporated in the inventory. In addition, the ERT notes that according to the 2006 IPCC Guidelines (volume 5, chapter 5.3.2), for countries with well-functioning waste collection system in place, it is good practice to investigate whether any	Yes. Completeness*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		fossil carbon is being open-burned. If emissions from open burning are assumed to be negligible, the reason for the assumption should be clearly explained and documented	
		The ERT recommends that the Russian Federation further investigate the occurrence of the open burning of waste and, if the emissions are considered relevant, quantify them, or, if the emissions are assumed to be negligible, use the notation key "NE" in CRF table 5.C and justify the use of the notation key in accordance with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines	
KP-LULUCF			
KL.1	General (KP-LULUCF)	The ERT notes that the total area reported by the Russian Federation in its 2016 CRF table NIR-2 has increased by 2,941.71 kha (the total area at the end of the current inventory year for 2013 was reported as 2,328,735.62 kha, whereas the total area at the end of the previous inventory year for 2014 was reported as 2,331,677.33). During the review, the Russian Federation advised the ERT that the reason for the discrepancy in land area was an error in filling in the CRF table when considering "other" areas; that is, areas not subject to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol. In the table, the Party reported the area of the country without areas subject to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the current inventory year under "other". The correct reporting for "other" would be the area of the country without areas subject to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol since 1990	Yes. Transparency*
		The ERT recommends that the Russian Federation report, in its CRF table NIR-2 under "other", the correct value for area not subject to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol since 1990	
KL.2	General (KP-LULUCF)	The ERT notes that the total area reported by the Russian Federation in CRF table 4.1 for 2014 in the 2016 submission is 1,712,519.25 kha, while the total area reported in CRF table NIR-2 is 2,331,677.33 kha. During the review, the Party advised the ERT that there was an error in the area calculations in CRF table NIR-2 (see ID# KL.1)	Yes. Transparency*
		The ERT recommends that the Russian Federation ensure the consistency of the total area in CRF table NIR-2 with the area reported in CRF table 4.1	
KL.3	Deforestation – CO_2	The ERT notes two errors in the reporting of AD under deforestation in CRF table 4(KP-I)A.2: (1) the AD reported for deforestation represent the deforested area in the inventory year, but they should be the sum of all areas subject to deforestation since 1990; and (2) the entry for "forest land", reported under "information items" under the heading "land areas under deforestation by land-use category in the reporting year", includes the total area subject to deforestation, but it should be used to indicate only the area subject to past deforestation events (e.g. in 1995) that has been subsequently	Yes. Comparability*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue[a] and/or a problem[b]? If yes, classify by type
		reforested (e.g. in 2000). During the review, the Party agreed with the ERT's observation The ERT recommends that the Russian Federation report correct AD for deforestation in CRF table 4(KP-I)A.2, in particular, by reporting as AD for deforestation the sum of all areas subject to deforestation since 1990, and by including under information items for forest land only the area subject to past deforestation events that has been subsequently reforested	
KL.4	Deforestation – CO_2	The ERT notes that the area of organic soils is reported as "IE" in CRF table 4(KP-I)A.2, while carbon stock changes in organic soils are reported as "NO". During the review, the Russian Federation explained that the area of organic soils is included under mineral soils. The Party further explained that there is no loss of carbon in organic soils during the construction of infrastructure because drainage is not performed. If necessary, filling by mineral soils is used during the construction of infrastructure, which preserves the organic soils under the embankment. The ERT does not consider the Russian Federation to have provided sufficient reasoning and data to justify the assumption that the complete area of organic soils under deforestation are preserved in this manner The ERT recommends that the Russian Federation provide additional information on the deforested areas with organic soils (including the share of the deforested area covered with buildings and roads) and measured data or references justifying the assumption that there are no CO_2 emissions from these organic soils, or alternatively that the that the Russian Federation report emissions from organic soils in accordance with the 2006 IPCC Guidelines and the Kyoto Protocol Supplement	Yes. Completeness*
KL.5	Forest management – CO_2, CH_4, N_2O	The ERT notes that the Party reported a forest management cap in the CRF table "accounting" of the 2016 submission. The ERT also notes that because the Party does not have a quantified emission limitation or reduction commitment in the second commitment period of the Kyoto Protocol, the forest management cap is not applicable to the Russian Federation. During the review, the Russian Federation explained that it intends to change its reporting for the forest management cap to the notation key "NA" The ERT recommends that the Russian Federation use the notation key "NA" for the forest management cap in the CRF table "accounting"	Yes. Transparency*
KL.6	Forest management – CO_2, CH_4, N_2O	The ERT notes that the value of the forest management reference level technical correction for the base year 1990 in CRF table 4(KP-I)B.1.1 (–116,251.69 kt CO_2 eq/year) is incorrect. During the review, the Russian Federation clarified the correct technical correction, taking into account the inclusion of harvested wood products and the new methods for calculation of CO_2 and non-CO_2 emissions from drained organic soils according to the Wetlands Supplement, as equal to 6,624.31 kt CO_2 eq	Yes. Transparency*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[a] and/or a problem[b]? If yes, classify by type*
		The ERT recommends that the Russian Federation report the correct value of the technical correction for the base year 1990 in CRF table 4(KP-I)B.1.1 and describe in the NIR how it was calculated	
KL.7	N_2O emissions from N mineralization/ immobilization due to carbon loss/gain associated with land-use conversions and management change in mineral soils – N_2O	The notation key "NO" is reported for this category for afforestation/reforestation, deforestation and forest management in CRF table 4(KP-II)3 of the 2016 submission. The ERT notes that deforestation results in mineral soil organic carbon losses and therefore N_2O emissions do occur. During the review, the Russian Federation advised the ERT that an error had occurred when completing this table and that N_2O emissions would be reported in the next submission The ERT recommends that the Russian Federation report the N_2O emissions from this category in CRF table 4(KP-II)3 for activities under which such emissions occur	Yes. Completeness*

Abbreviations: AD = activity data, CRF = common reporting format, EF = emission factor, ERT = expert review team, FAO = Food and Agriculture Organization of the United Nations, GHG = greenhouse gas, IE = included elsewhere, IEF = implied emission factor, IPCC = Intergovernmental Panel on Climate Change, IPCC good practice guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPPU = industrial processes and product use, JI = joint implementation, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 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 conversion factor, N = nitrogen, NA = not applicable, NE = not estimated, NEU = non-energy use, Nex = nitrogen excretion rate, NIR = national inventory report, NO = not occurring, QA/QC = quality assurance/quality control, SIAR = standard independent assessment report, 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", Wetlands Supplement = *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*, 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

[a] Recommendations are related to issues as defined in decision 13/CP.20, annex, paragraph 81, or problems as identified in decision 22/CMP.1, annex, paragraph 69, identified by the ERT during the review. Encouragements are made to the Party to address all findings not related to such issues.

[b] An asterisk is included next to each issue type that is also a problem, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to a question of implementation.

VI. Application of adjustments

10. The Russian Federation does not have a quantified emission limitation and reduction commitment in the second commitment period of the Kyoto Protocol and therefore the application of adjustments does not apply.

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

11. The Russian Federation does not have a quantified emission limitation and reduction commitment in the second commitment period of the Kyoto Protocol, and does not account for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol.

VIII. Questions of implementation

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

Annex I

Overview of greenhouse gas emissions and removals for the Russian Federation for submission year 2016 and data and information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

1. Tables 6–9 provide an overview of total greenhouse gas emissions and removals, as submitted by the Russian Federation.

Table 6
Total greenhouse gas emissions for the Russian Federation, 1990–2014[a]
(kt CO_2 eq)

	Total GHG emissions excluding indirect CO_2 emissions		*Total GHG emissions including indirect CO_2 emissions*[b]		*Land-use change (Article 3.7 bis as contained in the Doha Amendment)*[c]	*KP-LULUCF activities (Article 3.3 of the Kyoto Protocol)*[d]	*KP-LULUCF activities (Article 3.4 of the Kyoto Protocol)*	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*			*CM, GM, RV, WDR*[e]	*FM*
FMRL								–116 300.00
1990	3 929 475.76	3 767 555.04	3 929 475.76	3 767 555.04	NA		NA	
1995	2 351 928.02	2 429 432.44	2 351 928.02	2 429 432.44				
2000	1 927 804.15	2 274 497.94	1 927 804.15	2 274 497.94				
2010	2 054 822.49	2 602 483.43	2 054 822.49	2 602 483.43				
2011	2 093 038.82	2 665 179.26	2 093 038.82	2 665 179.26				
2012	2 166 317.74	2 700 925.24	2 166 317.74	2 700 925.24				
2013	2 118 526.86	2 643 064.60	2 118 526.86	2 643 064.60		150.74	NA	–481 281.42
2014[f]	2 135 839.21	2 648 873.35	2 135 839.21	2 648 873.35		792.76	NA	–470 714.24

Abbreviations: CM = cropland management, FM = forest management, FMRL = forest management reference level, GHG = greenhouse gas, GM = grazing land management, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable, RV = revegetation, WDR = wetland drainage and rewetting.

[a] Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions.

[b] The Party has not reported indirect CO_2 emissions in common reporting format table 6.

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

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

[e] The Russian Federation has provided information, in accordance with decision 3/CMP.11, paragraph 8, that it will not report on any voluntary activities under Article 3, paragraph 4, of the Kyoto Protocol.

[f] Includes emissions and removals from the Republic of Crimea and the city of Sevastopol, see footnote 2.

Table 7

Greenhouse gas emissions by gas for the Russian Federation, excluding land use, land-use change and forestry, 1990–2014[a]

(kt CO_2 eq)

	CO_2[b]	*CH_4*	*N_2O*	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	*SF_6*	*NF_3*
1990	2 589 725.31	942 383.46	183 239.56	35 937.16	15 122.41	NO	1 147.15	NO
1995	1 629 496.30	655 448.42	115 186.71	15 447.32	13 456.59	NO	397.11	NO
2000	1 504 182.73	634 332.61	98 853.75	26 569.68	9 894.72	NO	664.46	NO
2010	1 662 592.26	827 300.15	94 899.41	13 421.61	3 633.21	NO	636.79	NO
2011	1 717 221.95	842 543.99	90 299.50	11 309.90	3 317.94	NO	485.97	NO
2012	1 727 489.10	852 552.48	94 665.83	17 648.85	3 327.86	NO	5 241.11	NO
2013	1 666 644.42	856 648.07	89 940.23	21 503.25	3 419.50	NO	4 909.13	NO
2014[c]	1 671 568.65	859 101.07	90 157.23	24 149.07	3 097.90	NO	799.43	NO
Per cent change 1990–2014	**–35.5**	**–8.8**	**–50.8**	**–32.8**	**–79.5**	**NA**	**–30.3**	**NA**

Abbreviations: NA = not applicable, NO = not occurring.

[a] Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.

[b] The Russian Federation did not report indirect CO_2 emissions in common reporting format table 6.

[c] Includes emissions from the Republic of Crimea and the city of Sevastopol, see footnote 2.

Table 8
Greenhouse gas emissions by sector for the Russian Federation, 1990–2014[a, b]
(kt CO_2 eq)

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*[c]
1990	3 077 196.41	298 063.40	314 825.58	161 920.71	77 469.66	
1995	1 964 468.28	181 108.08	205 325.53	–77 504.42	78 530.55	
2000	1 843 711.42	196 991.45	152 522.67	–346 693.80	81 272.41	
2010	2 164 431.71	202 920.62	136 456.86	–547 660.94	98 674.24	
2011	2 226 868.04	205 887.27	130 532.13	–572 140.43	101 891.82	
2012	2 246 252.79	212 974.80	136 549.39	–534 607.50	105 148.26	
2013	2 188 923.96	213 350.64	131 826.96	–524 537.74	108 963.04	
2014[d]	2 191 154.72	212 722.76	132 427.82	–513 034.14	112 568.04	
Per cent change 1990–2014	**–28.8**	**–28.6**	**–57.9**	**–416.8**	**45.3**	**NA**

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.

[b] The Russian Federation did not report indirect CO_2 emissions in common reporting format table 6.

[c] The cells for the category other are blank in the Party's submission.

[d] Includes emissions and removals from the Republic of Crimea and the city of Sevastopol, see footnote 2.

Table 9

Greenhouse gas emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by activity, 1990[a, b]–2014, for the Russian Federation

(kt CO_2 eq)

	Article 3.7 bis as contained in the Doha Amendment[c]	*Article 3.3 of the Kyoto Protocol*		*Forest management and elected Article 3.4 activities of the Kyoto Protocol*				
	Land-use change	*Afforestation and reforestation*	*Deforestation*	*Forest management*	*Cropland management*	*Grazing land management*	*Revegetation*	*Wetland drainage and rewetting*
FMRL				–116 300.00				
Technical correction				–116 251.69				
1990	NA				NA	NA	NA	NA
2013		–5 038.51	5 189.25	–481 281.42	NA	NA	NA	NA
2014[d]		–4 970.01	5 762.77	–470 714.24	NA	NA	NA	NA
Per cent change 1990–2014					**NA**	**NA**	**NA**	**NA**

Abbreviations: FMRL = forest management reference level, NA = not applicable.

[a] The Russian Federation has provided information, in accordance with decision 3/CMP.11, paragraph 8, that it will not report on any voluntary activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol, and forest management under Article 3, paragraph 4, of the Kyoto Protocol, only the inventory years of the commitment period must be reported.

[b] Values in this table include emissions on lands subject to natural disturbances, if applicable.

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

[d] Includes emissions and removals from the Republic of Crimea and the city of Sevastopol, see footnote 2.

2. Table 10 provides an overview of relevant key data for the Russian Federation's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 10
Key relevant data for the Russian Federation under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

Key parameters	*Values*
Periodicity of accounting	NA
Identification of activities under Article 3, paragraph 4	None
Application of provisions for natural disturbances	No
3.5% of total base year GHG emissions, excluding LULUCF	NA
Cancellation of AAUs, ERUs, CERs and/or issuance of RMUs in the national registry for:	
1. Afforestation and reforestation in 2014	NA
2. Deforestation in 2014	NA
3. Forest management in 2014	NA
4. Cropland management in 2014	NA
5. Grazing land management in 2014	NA
6. Revegetation in 2014	NA
7. Wetland drainage and rewetting in 2014	NA

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction unit, ERU = emission reduction unit, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable, RMU = removal unit.

Annex II

Additional information to support findings in table 2

Missing categories that may affect completeness

The categories for which methods are included in the Intergovernmental Panel on Climate Change (IPCC) *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the 2006 IPCC Guidelines) were reported as "NE" (not estimated) or for which the expert review team otherwise determined that there may be an issue with the completeness of reporting in the Party's inventory are the following:

(a) 2.A.3 Glass production – CO_2: emissions from glass wool production are not estimated (see ID# I.8);

(b) 2.E Electronics industry – PFCs: a method from the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* is used and therefore emissions from additional gases and processes for which methods and EFs are available in the 2006 IPCC Guidelines are not estimated (see ID# I.15);

(c) 5.C.2 Open burning of waste – CO_2, CH_4 and N_2O emissions are not estimated (see ID# W.6);

(d) Deforestation: Carbon stock changes in organic soils under deforestation are reported as "NO" (see ID# KL.4);

(e) N_2O emissions from nitrogen mineralization/immobilization due to carbon loss/gain associated with land-use conversions and management change in mineral soils (deforestation under Article 3, paragraph 3, of the Kyoto Protocol): emissions are reported as "NO" (not occurring) (see ID# KL.7).

Annex III

Documents and information used during the review

A. Reference documents

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 <http://unfccc.int/resource/webdocs/agi/2015.pdf>.

Status report of the annual inventory of the Russian Federation. Available at <http://unfccc.int/resource/docs/2016/asr/rus.pdf>.

FCCC/ARR/2014/RUS. Report on the individual review of the annual submission of the Russian Federation submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/rus.pdf>.

FCCC/ARR/2013/RUS. Report of the individual review of the annual submission of the Russian Federation submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/rus.pdf>.

FCCC/ARR/2012/RUS. Report of the individual review of the annual submission of the Russian Federation submitted in 2012. Available at <http://unfccc.int/resource/docs/2013/arr/rus.pdf>.

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

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

“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”. Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=4>.

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

“Guidelines for 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”. Annex to decision 13/CP.20. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf#page=6>.

“Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part I: Implications related to accounting and reporting and other related issues”. Decision 3/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=5>.

“Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part II: Implications related to review

and adjustments and other related issues". Decision 4/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=30>.

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

Intergovernmental Panel on Climate Change. 2014. *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*. Available at <http://www.ipcc-nggip.iges.or.jp/public/kpsg>.

Intergovernmental Panel on Climate Change. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. Available at <http://www.ipcc-nggip.iges.or.jp/public/wetlands/index.html>.

Standard independent assessment report, part 1, for the Russian Federation for 2016. Available at <http://unfccc.int/files/kyoto_mechanisms/application/pdf/siar_part_1_assessment_report_ru_2016_v1.0.pdf>.

Standard independent assessment report, part 2, for the Russian Federation for 2016. Available at <http://unfccc.int/files/kyoto_mechanisms/application/pdf/siar_part_2_assessment_report_ru_2016_v1.0.pdf >.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Alexander Nakhutin (Institute of Global Climate and Ecology), including additional material on the methodology and assumptions used.

Annex IV

Acronyms and abbreviations

AAU	assigned amount unit
AD	activity data
CER	certified emission reduction unit
CH_4	methane
CM	cropland management
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CP 2	second commitment period of the Kyoto Protocol
CPR	commitment period reserve
CRF	common reporting format
DOM	dead organic matter
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
FAO	Food and Agriculture Organization of the United Nations
FM	forest management
FMRL	forest management reference level
GHG	greenhouse gas
GM	grazing land management
HFC	hydrofluorocarbon
IE	included elsewhere
IEA	International Energy Agency
IEF	implied emission factor
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
JI	joint implementation
KP-LULUCF	LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
kt	kilotonne
LULUCF	land use, land-use change and forestry
MCF	methane conversion factor
N	nitrogen
NA	not applicable
NE	not estimated
NEAT	non-energy accounting tables
NEU	non-energy use
Nex	nitrogen excretion rate
NF_3	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
N_2O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SF_6	sulphur hexafluoride
SIAR	standard independent assessment report
UNFCCC	United Nations Framework Convention on Climate Change
WDR	wetland drainage and rewetting

Written comment on the final review report, submitted by the Russian Federation on 18 August 2017 in accordance with decisions 13/CP.20 and 22/CMP.1*

Explanatory text by the Russian Federation to the Report on the individual review of the Russian GHG inventory report submitted in 2016

The Russian Federation reaffirms its commitment to fulfill the obligations arising from the United Nations Framework Convention on Climate Change throughout the entire geographical area of the country, including the Republic of Crimea and the city of Sevastopol.

The Republic of Crimea and the city of Sevastopol were included in the scope of geographical coverage of the 2016 annual submission of the Russian Federation in fulfillment of the principle of completeness of the data submitted which, according to paragraphs 3, 4 and 37 of the UNFCCC reporting guidelines on annual greenhouse gas inventories (decision 24/CP.19), assumes the full geographical coverage of the sources and sinks of the Party and requires a special explanation of the reasons for exclusion parts of its geographical area, if any. The Russian Federation does not see any grounds for excluding the Republic of Crimea and the city of Sevastopol from the geographical scope of the national inventory.

The position taken by the expert review team on this issue creates serious obstacles to the implementation by the Russian Federation of not only Article 12 of the Convention providing for the submission of a national inventory, but of the Convention as a whole, as well as the documents adopted pursuant to its provisions. By refusing to properly perform one of the key functions related to the review of submitted inventories, technical body of the Convention, the expert review team, one of the main tasks of which is to provide objective analysis, demonstrates the political engagement.

* This text has been reproduced as received.