United Nations

FCCC/IDR.7/RUS

Framework Convention on Climate Change

Distr.: General
22 January 2019

English only

Report on the technical review of the seventh national communication of the Russian Federation

Parties included in Annex I to the Convention were requested by decision 9/CP.16 to submit their seventh national communication to the secretariat by 1 January 2018. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the seventh national communication and relevant supplementary information under the Kyoto Protocol of the Russian Federation, conducted by an expert review team in accordance with 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" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

GE.19-01022(E)

1901022

Contents

Abbreviations and acronyms

Annex II Party	Party included in Annex II to the Convention
BR	biennial report
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CTF	common tabular format
EBRD	European Bank for Reconstruction and Development
ERT	expert review team
GCOS	Global Climate Observation System
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IE	included elsewhere
IGCE	Institute of Global Climate and Ecology
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NEACC	North Eurasia Climate Centre
NF_3	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
N_2O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
reporting guidelines for supplementary information	"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2"
RES	renewable energy sources
Roshydromet	Federal Service for Hydrometeorology and Environmental Monitoring
RUB	Russian roubles
SF_6	sulfur hexafluoride
SIDS	small island developing States
UNDP	United Nations Development Programme
UNFCCC reporting guidelines on NCs	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications"
UNIDO	United Nations Industrial Development Organization
VMGO	Federal State Budgetary Institution Voeikov Main Geophysical Observatory
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the NC7 of the Russian Federation. The review was coordinated by the secretariat in accordance with 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", particularly "Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention" (annex to decision 13/CP.20), and the "Guidelines for review under Article 8 of the Kyoto Protocol" (annex to decision 22/CMP.1 and annex I to decision 4/CMP.11).[1]

2. In accordance with the same decisions a draft version of this report was transmitted to the Government of the Russian Federation, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted from 1 to 6 October 2018 in Moscow by the following team of nominated experts from the UNFCCC roster of experts: Mr. Matej Gasperic (Slovenia), Ms. Aiymgul Kerimray (Kazakhstan), Ms. Anna Sikharulidze (Georgia), Mr. Koen Smekens (Belgium) and Ms. Lilia Taranu (Republic of Moldova). Mr. Gasperic and Ms. Sikharulidze were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene and Ms. Toby Hedger (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC7 of the Russian Federation in accordance with the UNFCCC reporting guidelines on NCs (decision 4/CP.5) and the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol (annex to decision 15/CMP.1 and annex III to decision 3/CMP.11).

1. Timeliness

5. The NC7 was submitted on 27 December 2017, before the deadline of 1 January 2018 mandated by decision 9/CP.16.

2. Completeness, transparency of reporting and adherence to the reporting guidelines

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by the Russian Federation in its NC7, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs.

[1] At the time of the publication of this report, the Russian Federation had not yet submitted its instrument of acceptance 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.

Table 1
Assessment of completeness and transparency of mandatory information reported by the Russian Federation in its seventh national communication, including supplementary information under the Kyoto Protocol

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendations*	*Supplementary information under the Kyoto Protocol*	*Completeness*	*Transparency*	*Reference to description of recommendations*
Executive summary	Complete	Transparent	–	National system	NA	NA	NA
National circumstances	Complete	Mostly transparent	Issue 1 in table 4	National registry	NA	NA	NA
GHG inventory	Complete	Transparent	–	Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	NA	NA	NA
PaMs	Mostly complete	Mostly transparent	Issues 5 and 9 in table 8	PaMs in accordance with Article 2	Complete	Complete	–
Projections and the total effect of PaMs	Partially complete	Mostly transparent	Issues 1, 3, 4, 6 and 14 in table 11, issues 1 and 2 in table 13	Domestic and regional programmes and/or arrangements and procedures	Complete	Mostly transparent	Issue 1 in table 6
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent	–	Information under Article 10[a]	NA	NA	NA
Financial resources and transfer of technology[b]	NA	NA	NA	Financial resources[c]	NA	NA	NA
Research and systematic observation	Complete	Transparent	–	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	–
Education, training and public awareness	Complete	Transparent	–				

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below. The assessment of completeness and transparency by the ERT reflected in this table is based only on the "shall" reporting requirements.

[a] The assessment refers to information provided by the Party on the provisions contained in Article 4, paragraphs 3, 5 and 7, of the Convention reported under Article 10 of the Kyoto Protocol, which is relevant to Annex II Parties only. Assessment of the information provided by the Party on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, for example research and systematic observation.

[b] The Russian Federation is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention.

[c] The Russian Federation is not an Annex II Party and is therefore not obliged to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources. The Russian Federation did, however, provide some information on financial resources.

3. Summary of reviewed supplementary information under the Kyoto Protocol

7. The supplementary information under Article 7, paragraph 2, of the Kyoto Protocol is incorporated in different sections of the NC7 and the supplementary information under Article 7, paragraph 1, of the Kyoto Protocol is reported in the NIR of the 2018 annual submission. Table 2 provides references to where the information is reported. The technical assessment of the information reported under Article 7, paragraphs 1 and 2, of the Kyoto Protocol is contained in the relevant sections of this report.

Table 2
Overview of supplementary information under the Kyoto Protocol reported by the Russian Federation

Supplementary information	*Reference to section of NC7*
National registry	III.8
National system	III.7
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	NA
PaMs in accordance with Article 2	IV
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	IV.1 and III.5
Information under Article 10	VII
Financial resources[a]	VII
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Reported in the NIR of the Party's 2018 annual submission (section 10.4) and in the NC7 (IV.2)

[a] Reporting on financial resources under the Kyoto Protocol is relevant to Annex II Parties. As the Russian Federation is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources. The Russian Federation did, however, provide some information on financial resources.

II. Technical review of the information reported in the seventh national communication, including the supplementary information under the Kyoto Protocol

A. Information on national circumstances and greenhouse gas emissions and removals

1. National circumstances relevant to greenhouse gas emissions and removals

(a) Technical assessment of the reported information

8. The national circumstances of the Russian Federation explain the relationship between its historical and future emission trends and the climate change policy agenda. The changing nature of those circumstances defines the factors that affect the climate policy development and implementation of the Convention. The NC7 contains key data on government structure, population trends, geography, climate, economic developments, energy, transport, industry, waste, agriculture and forestry.

9. The following are the characteristics of overall economic development and sectoral development that most significantly affect the trends in GHG emissions and removals:

production of primary energy resources; development of road transport; and dynamics in the total amount of waste, agricultural output, area of forest land, total biomass stock and forest logging.

10. The ERT noted that during the period 1990–2016 the Russian Federation's population decreased by 2.6 per cent and GDP increased by 15.1 per cent, while GHG emissions per GDP unit and GHG emissions per capita decreased by 38.5 and 27.3 per cent, respectively. The most significant decrease in emissions per GDP unit and per capita occurred in the 1990s owing to the downward economic trend caused by the dissolution of the Soviet Union and the consequent economic reforms put in place in the Russian Federation as it restructured its economy. After 1999, GHG emissions per capita show an increasing trend, with some inter-annual variation in the period 2012–2016. Emissions per GDP unit continue to decrease until 2008, after which they fluctuate but remain approximately at the same level. Table 3 illustrates the national circumstances of the Russian Federation by providing some indicators relevant to emissions and removals.

Table 3
Indicators relevant to greenhouse gas emissions and removals for the Russian Federation for the period 1990–2016

						Change (%)	
Indicator	*1990*	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*
GDP per capita (thousands 2011 USD using purchasing power parity)	20.64	14.05	23.11	24.51	24.41	18.3	–0.4
GHG emissions without LULUCF per capita (t CO_2 eq)	25.18	15.34	18.01	18.25	18.32	–27.3	0.4
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2011 USD using purchasing power parity)	1.22	1.09	0.78	0.74	0.75	–38.5	0.8

Sources: (1) GHG emission data: the Russian Federation's 2018 GHG inventory submission, version 1.0; (2) population and GDP: World Bank.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

(b) Assessment of adherence to the reporting guidelines

11. The ERT assessed the information reported in the NC7 of the Russian Federation and identified issues relating to transparency, completeness and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 4.

Table 4
Findings on national circumstances relevant to greenhouse gas emissions and removals from the review of the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 8 Issue type: transparency	The NC7 does not include transparent information on how changes in national circumstances affect GHG emissions and removals over time. Drivers of change in GHG emissions have been provided, with some information on how these drivers have affected GHG emissions; however, actual values for many drivers (e.g. GDP, GDP per capita, population density) and an analysis of their influence on GHG

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Assessment: recommendation	emissions over the period have not been provided, which limits understanding of how changes in national circumstances have affected GHG emissions and removals. During the review, in response to questions raised by the ERT, the Russian Federation illustrated the decoupling of GDP from GHG emissions from fuel consumption and provided the ERT with GDP values used in the analysis. The Party also explained the drivers of recent trends in total GHG emissions and clarified that a detailed analysis of how changes in national circumstances affect GHG emissions and removals, as well as analyses of trends, drivers and the implications of changes in these drivers on GHG emissions, may be carried out in the coming years, depending on the availability of resources. The ERT recommends that the Russian Federation improve the transparency of its reporting by providing in its next NC information on drivers of change in GHG emissions and an analysis of how national circumstances have affected GHG emissions over time, especially for the period commencing after 2008. This analysis could support and serve as the basis for developing GHG projections.
2	Reporting requirement specified in paragraph 8 Issue type: completeness Assessment: encouragement	The NC7 does not include information on building stock and urban structure, such as the profile of residential and commercial buildings, in the chapter on national circumstances. During the review, in response to questions raised by the ERT, the Russian Federation clarified that buildings fall under the responsibilities of the Ministry of Construction, Housing and Utilities. The Party provided information on State policy in relation to buildings and on some activities implemented by the Ministry of Construction, Housing and Utilities in recent years. These include the development of legislation regarding the energy efficiency of buildings. The ERT encourages the Russian Federation to improve the completeness of its reporting by addressing building stock and urban structure and, more specifically, the profile of residential and commercial buildings.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

2. Information on greenhouse gas inventory arrangements, emissions, removals and trends

(a) Technical assessment of the reported information

12. Total GHG emissions[2] excluding emissions and removals from LULUCF decreased by 29.2 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 48.4 per cent over the same period. Table 5 illustrates the emission trends by sector and by gas for the Russian Federation.

Table 5
Greenhouse gas emissions by sector and by gas for the Russian Federation for the period 1990–2015

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
Sector									
1. Energy	3 045 239.50	1 813 850.93	2 137 893.21	2 162 055.91	2 175 355.49	–28.6	0.6	81.5	82.3

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated based on the 2018 annual submission, version 1.0.

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
A1. Energy industries	1 171 194.98	842 615.26	878 937.43	820 625.09	808 954.74	–30.9	–1.4	31.4	30.6
A2. Manufacturing industries and construction	211 289.43	99 325.57	129 713.65	148 933.03	168 937.15	–20.0	13.4	5.7	6.4
A3. Transport	320 237.89	174 136.93	229 571.43	257 125.40	256 126.34	–20.0	–0.4	8.6	9.7
A4. and A5. Other	584 155.15	189 467.06	174 379.34	196 831.84	183 766.97	–68.5	–6.6	15.6	7.0
B. Fugitive emissions from fuels	758 362.05	508 306.10	725 291.35	738 540.54	757 570.29	–0.1	2.6	20.3	28.7
C. CO_2 transport and storage	NA, NO	NA, NO	NA, NO	NO	NO	–	–	–	–
2. IPPU	283 472.50	196 349.36	196 865.31	218 768.95	218 495.48	–22.9	–0.1	7.6	8.3
3. Agriculture	324 475.93	155 564.05	140 195.80	135 797.12	134 175.62	–58.6	–1.2	8.7	5.1
4. LULUCF	158 808.02	–401 489.59	–629 518.79	–603 048.50	–634 454.44	–499.5	5.2	–	–
5. Waste	81 156.84	83 307.53	98 230.21	113 255.49	115 790.31	42.7	2.2	2.2	4.4
6. Other	0.00	0.00	0.00	0.00	0.00	–	–	0.0	0.0
Gas[a]									
CO_2	2 571 210.65	1 499 616.21	1 657 560.68	1 671 895.08	1 668 069.93	–35.1	–0.2	68.9	63.1
CH_4	922 029.61	611 795.12	800 251.40	838 808.82	856 363.71	–7.1	2.1	24.7	32.4
N_2O	188 671.01	100 303.72	97 294.02	92 170.37	91 042.80	–51.7	–1.2	5.1	3.4
HFCs	35 937.16	26 569.40	13 471.65	22 355.06	23 622.72	–34.3	5.7	1.0	0.9
PFCs	15 105.81	9 867.31	3 619.67	3 507.27	3 657.44	–75.8	4.3	0.4	0.1
SF_6	1 390.53	920.09	987.11	1 139.57	1 052.12	–24.3	–7.7	0.0	0.0
NF_3	IE, NO	IE, NO	IE, NO	1.30	8.17	–	530.4	–	0.0
Total GHG emissions without LULUCF	**3 734 344.76**	**2 249 071.86**	**2 573 184.52**	**2 629 877.47**	**2 643 816.89**	**–29.2**	**0.5**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**3 893 152.78**	**1 847 582.27**	**1 943 665.74**	**2 026 828.96**	**2 009 362.46**	**–48.4**	**–0.9**	**NA**	**NA**

Source: GHG emission data: the Russian Federation's 2018 annual submission, version 1.0. The data have not been reviewed by the ERT.

[a] Emissions by gas without LULUCF and without indirect CO_2.

13. The decrease in total emissions was driven mainly by changes in the economic growth pattern of the country. Total GHG emissions sharply decreased during the period 1990–1998 owing to the economic crisis after the dissolution of the Soviet Union, and the economic reforms put in place and consequent restructure of the economy of the Russian Federation. After 1998, GHG emissions slowly but steadily increased, mainly as a result of increased fuel consumption and industrial production. This trend continued until 2012, except for a drop during 2009–2010 due to the worldwide economic recession. Since 2012, inter-annual

fluctuations in GHG emissions have been observed, caused by unsteady GDP growth and consequent fluctuations in fuel consumption and industrial and agricultural production.

14. Between 1990 and 2016, GHG emissions from the energy sector decreased by 28.6 per cent (869,884 kt CO_2 eq) owing mainly to the downward trend in GDP growth before 1998, which affected all sectors of the economy and caused a decrease in fuel consumption in all sectors. After 1998, emissions from the energy sector gradually increased owing to economic growth; however, the growth in emissions was much slower than growth in GDP because of the improvement in overall energy intensity (the total primary energy supply intensity per unit of GDP decreased by 39.9 per cent during the period 1998–2008). After the 2008 economic crisis, emissions dropped, but had recovered by 2011.

15. In the period 2012–2016, inter-annual variations occurred in total GHG emissions from the energy sector, with 2016 emissions being 1.7 per cent lower than 2012 values. The energy intensity remained almost unchanged. Emissions from energy industries show a decreasing trend in the period 2012–2016 (a reduction of 11.2 per cent), driven by an increase in the share of nuclear power and hydropower production. However, this reduction was offset by increased emissions from fuel combustion in energy demand sectors, in particular manufacturing industries and construction (a 20.3 per cent increase in 2016 compared with the 2012 level), transport (a 4.7 per cent increase in 2016 compared with the 2012 level) and other sectors (a 28.5 per cent increase in 2016 compared with the 2012 level).

16. Between 1990 and 2016, GHG emissions from IPPU decreased by 22.9 per cent (64,977 kt CO_2 eq). Before 1998, there was a sharp decrease in emissions from the sector because of a decrease in industrial production in almost all subsectors. After 1998, industrial sector emissions grew, accompanying the growth in production and consumption of industrial products, to 2007. The economic crisis in 2008−2009 resulted in some reduction in emissions in the sector, and since then, they have grown gradually, with inter-annual fluctuations.

17. Between 1990 and 2016, GHG emissions from the agriculture sector decreased by 58.6 per cent (190,300 kt CO_2 eq), owing mainly to decreases in the cattle population and in the use of nitrogen fertilizers. Emissions from the agriculture sector are characterized by a continued decreasing trend over the entire period 1990–2016, with small inter-annual fluctuations.

18. The LULUCF sector was a net sink of 634,454 kt CO_2 eq in 2016; in 1990 it was a net source of 158,808 kt CO_2 eq. This change was mainly driven by the decrease in forest logging.

19. Between 1990 and 2016, GHG emissions from the waste sector increased by 42.7 per cent (34,634 kt CO_2 eq) owing mainly to an increase in both waste generation and waste collection rates. The waste sector is the only sector with a continuous growing emission trend in the Russian Federation.

20. The share of CO_2 emissions of total emissions without LULUCF dropped from 68.9 per cent in 1990 to 63.1 per cent in 2016, owing to relative decoupling of emissions from fuel combustion and GDP. In 2016, CO_2 emissions were 35.1 per cent below the 1990 level. They were closely aligned with the emission trends of fuel combustion and IPPU, with a sharp decrease before 1998, an increase until 2008 and stabilization thereafter. The share of CH_4 emissions in total emissions without LULUCF increased from 24.7 per cent in 1990 to 32.4 per cent in 2016, owing to a steady increase in emissions from the waste sector and fugitive emissions from oil and gas operations in the energy sector. In 2016, CH_4 emissions were 7.1 per cent below the 1990 level. In 2016, N_2O emissions were 51.7 per cent below the 1990 level, owing mainly to decreasing emissions from the agriculture sector resulting from a decrease in the use of nitrogen fertilizers.

21. In 2016, HFC emissions were 34.3 per cent below and PFC emissions were 75.8. per cent below the 1990 level. In 2016, SF_6 emissions were 24.3 per cent below the 1990 level. The decreasing trend in fluorinated gas emissions is due to a decrease in emissions of these gases from the metal and chemical industries. Emissions from the electronics industry and emissions resulting from the use of fluorinated gases as ozone-depleting substances substitutes show, in contrast, an increasing trend.

22. The summary information provided on GHG emissions was consistent with the information reported in the 2017 annual submission.

(b) Assessment of adherence to the reporting guidelines

23. The ERT assessed the information reported in the NC7 of the Russian Federation and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

3. National system for the estimation of anthropogenic emissions by sources and removals by sinks

Technical assessment of the reported information

24. The Russian Federation provided in the NC7 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

4. National registry

Technical assessment of the reported information

25. In the NC7 the Russian Federation provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The Ministry of Natural Resources and Environment is responsible for the operation of the national registry of carbon units. In 2015, the functions of organization and administration of the registry were assigned to the Federal State Budgetary Institution–Russian Information Fund on Natural Resources and Environmental Protection of the Ministry of Natural Resources and Environment.

26. As the Russian Federation does not have a quantified economy-wide emission reduction target for the second commitment period of the Kyoto Protocol (2012–2020), it will not use the flexibility mechanisms of the Kyoto Protocol. At the request of the Russian Federation, the national registry was disconnected from the international transaction log on 30 December 2015. As a result, the Russian Federation does not cooperate with other Parties in the framework of maintaining a common registry. Therefore, the ERT did not assess whether the information reported in the NC7 on the national registry adheres to the UNFCCC reporting guidelines on NCs.

B. Information on policies and measures and institutional arrangements

1. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol

(a) Technical assessment of the reported information

27. Implementation of the Kyoto Protocol by the Russian Federation is underpinned by Law No. 128-F3 of 4 November 2004 on the ratification of the Kyoto Protocol, which forms the basis for the development of corresponding national PaMs. The President and Government of the Russian Federation, regional executive bodies and private companies developed and adopted a package of federal and regional legislative and regulatory documents to implement the commitments under the Convention and its Kyoto Protocol.

28. As the Russian Federation does not have a quantified economy-wide emission reduction target for the second commitment period of the Kyoto Protocol, several legislative acts related to the Kyoto Protocol have been discontinued. These include an order on the approval and verification of projects implemented in accordance with Article 6 of the Kyoto

Protocol and an order on the approval, implementation and control of projects implemented in accordance with Articles 6 and 17 of the Kyoto Protocol.

29. The Russian Federation has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources. The Party indicated that provisions that ensure the conservation of biodiversity and the sustainable use of natural resources in forests are embedded in the Forest Code, the Strategy of Ecological Security and the State policy for the use, protection and reproduction of forests by 2030 (order no. 1724 of 26 September 2013). To ensure the conservation of biodiversity and the sustainable use of natural resources, the Federal Agency for Forestry regularly monitors forests remotely using aerospace and geographic information system technologies and oversees forest management in the Russian Federation.

(b) Assessment of adherence to the reporting guidelines

30. The ERT assessed the information reported in the NC7 of the Russian Federation and identified an issue relating to transparency. The findings are described in table 6.

Table 6
Findings on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol from the review of the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 37 Issue type: transparency Assessment: recommendation	The Russian Federation did not transparently report in its NC7 on administrative procedures related to the implementation of the Kyoto Protocol. The information that was reported on administrative procedures covered federal and regional legislation without indicating specific arrangements related to climate change and the Kyoto Protocol. In addition, it did not provide a description of legislative arrangements and administrative procedures in place to make information publicly accessible (including rules for enforcement and action taken). During the review, in response to questions raised by the ERT, the Russian Federation clarified the roles of federal and regional bodies in climate change policymaking and monitoring and explained that all government acts and regulations in the Russian Federation, unless they are deemed confidential, are openly accessible to the public on the websites of the relevant institutions. This policy covers the legislative arrangements and enforcement and administrative procedures related to the Kyoto Protocol. The ERT recommends that the Russian Federation include in its next NC a clear description of administrative procedures established pursuant to the implementation of the Kyoto Protocol, including legislative arrangements and administrative procedures in place to make information publicly accessible (including rules on enforcement and action taken).

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent.

2. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol

31. Several regions have their own mitigation action plans. PaMs at the regional level include the Energy Efficiency and Energy Development State Programme and projects implemented in partnership with international organizations (UNDP-GEF and EBRD-UNIDO), such as Building Energy Efficiency in the North West of Russia with UNDP-GEF. During the review, the Russian Federation provided further information on mitigation actions implemented by large industrial companies, such as Gazprom, LUKOIL, RUSAL and ROSATOM.

32. The key overarching cross-sectoral policy reported by the Russian Federation is its climate doctrine (Presidential Decree No. 861 of 19 December 2009), which provides the framework for existing climate policy and for the Russian Federation meeting its emission

reduction target for 2020 under the Convention. The comprehensive plan for implementing the doctrine was developed and approved in 2014 (order no. 730 of 25 April 2011). The climate doctrine is currently under implementation. The action plan is supported by sectoral action plans and strategies, with the strategy for the energy sector being the most significant.

33. All PaMs reported by the Russian Federation are either implemented or ongoing. No planned PaMs were reported. Table 7 provides a summary of the reported information on the PaMs of the Russian Federation.

Table 7
Summary of information on policies and measures reported by the Russian Federation

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Climate doctrine of the Russian Federation (Presidential Decree No. 861 of 19 December 2009)	NE	NE
	Comprehensive plan for implementing the climate doctrine of the Russian Federation by 2020 (resolution no. 730 of 25 April 2011)	NE	NE
	Reducing GHG emissions by 2020 to a level not exceeding 75 per cent of the 1990 emission level (Presidential Decree No. 752 of 30 September 2013)	942 000	NE
	Action plan for achieving the target of a reduction in GHG emissions by 2020 to a level not exceeding 75 per cent of the 1990 emission level (resolution no. 504 of 2 April 2014)	NE	NE
	Plan for implementing a set of measures for improving the State regulation of GHG emissions (Decree No. 2344-P of 3 November 2016)	NE	NE
Energy	Energy strategy to 2030 and draft energy strategy to 2035 (Decree No. 1715-p of 13 November 2009)	696 000	NE
	State Programme for Development of Coal Mining Industry	NE	83 800–167 500
Energy efficiency	Energy Saving and Improving Energy Efficiency and Amending Certain Legislative Acts of the Russian Federation (Law No. 261-FZ of 23 November 2009)	NE	NE
	State programme Energy Efficiency and Energy Development (Decree No. 321 of 15 April 2014; updated in 2015, 2016 and 2017, with the latest change in Decree No. 375 of 31 March 2017)	NE	NE
	Plan of measures for improving State regulation in the field of providing energy services (order no. 7803p-P9 of 20 November 2014)	NE	NE
	Corporate programmes in innovative development, energy efficiency and energy saving, accompanied by a reduction in GHG gas emissions (for Novatek, NK Rosnef and Transneft listed under corporate programmes the estimate of mitigation impact is not estimated)	Gazprom (2012–2016): 60 100 LUKOIL (since 2011): 3 400	NE

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Renewable energy	Measures to stimulate the production of electricity by establishing facilities using renewable energy sources (approved by order no. 1839-p of 4 October 2012)	NE	NE
	Mechanism for stimulating the use of renewable energy sources in the wholesale electricity and capacity market (Decree No. 449 of 28 May 2013). Updated by Amendments to Certain Acts of the Government of the Russian Federation Regarding the Use of Renewable Energy Sources in the Wholesale Electricity and Power Market (Decree No. 1210 of 10 November 2015)	NE	NE
	Amending Certain Acts of the Government of the Russian Federation Concerning the Promotion of the Use of Renewable Energy Sources in Retail Electricity Markets (Decree No. 47 of 23 January 2015)	NE	NE
IPPU	Programme for the development of the Russian coal industry to 2030 (Decree No. 1099-r of 21 June 2014)	NE	NE
	Strategy for the development of ferrous metallurgy in Russia for the period 2014–2020 and the future to 2030 (order no. 839 of the Ministry of Industry and Trade of 5 May 2014)	NE	NE
	Strategy for the development of non-ferrous metallurgy in Russia for the period 2014–2020 and the future to 2030 (order no. 839 of the Ministry of Industry and Trade of 5 May 2014)	NE	NE
	Strategy for the development of the chemical and petrochemical industry of Russia to 2030 (order no. 651/172 of the Ministry of Industry and Trade and the Ministry of Energy of 8 April 2014)	NE	NE
Transport	Transport strategy of the Russian Federation to 2030 (order no. 1734-r of 22 November 2008; updated by Decree No. 1032-r of 11 June 2014)	NE	NE
	Federal target programme Development of the Transport System of Russia (2010–2020)	NE	NE
	State programme Expansion of the Use of Natural Gas as a Motor Fuel for Transport and Special-Purpose Vehicles for the period 2018–2022	NE	NE
Agriculture	State programme Development of Agriculture and Regulation of Agricultural Products, Raw Materials and Foodstuffs for 2013–2020 (approved by Decree No. 717 of 14 July 2012; updated by relevant resolutions in 2013–2017)	NE	NE
	Federal target programme Development of Land Reclamation of Agricultural Land in Russia for 2014–2020 (Decree No. 922 of 12 October 2013; updated by relevant resolutions in 2014–2017)	NE	NE
LULUCF	State policy for the use, protection and reproduction of forests by 2030 (order no. 1724 of 26 September 2013)	NE	NE
	State programme Development of Forestry for the period 2013–2020 (approved by resolution no. 318 of 15 April 2014; amended by resolution no. 319 of 31 March 2017)	NE	NE

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Waste	Amendments to the Federal Law on Production and Consumption Wastes (Law No. 458-FZ of 29 December 2014)	NE	NE
	Comprehensive Strategy for Municipal Solid Waste Management (order no. 298 of 14 August 2013)	NE	NE
	Requirements for Regional Waste Management Systems including Municipal Solid Waste Management (Law No. 486-FZ of 28 December 2016)	NE	NE
	Federal target programme Development of the Water Management Industry of the Russian Federation in 2012–2020 (approved by resolution no. 350 of 19 April 2012)	NE	NE

Note: The estimates of mitigation impact are estimates of emissions of CO_2 or CO_2 eq avoided in a given year as a result of the implementation of mitigation actions, unless otherwise specified.

(a) Policies and measures in the energy sector

34. **Energy supply.** The main policy document targeting energy supply is the Russian Federation's energy strategy to 2030 and draft energy strategy to 2035 (Decree No. 1715-p of 13 November 2009). The strategy aims to ensure sufficient energy supply for the expected domestic fuel consumption and expected fuel exports. An assessment of the intermediate results of the implementation of the strategy shows an expected increase in energy consumption and related GHG emissions in the Russian Federation until 2030, depending on the phase of implementation (phase 1, phase 2 or phase 3). Despite a slight decrease in the share of solid fuel consumption in phase 1, from 17.6 per cent in 2005 to 16.7 per cent in 2030, the overall domestic consumption in 2030 is expected to increase in phase 1 by 5.7–16.4 per cent compared with the 2005 level.

35. In the draft energy strategy to 2035, as provided by the Party during the review, the domestic fuel consumption in 2035 is expected to increase by 2–3 per cent compared with the 2030 level and 13–16 per cent compared with the 2015 level. Owing to the changes in the structure of fuels by 2030 where, according to the draft strategy, non-carbon fuels are to increase by 0.7–1.9 per cent (the shares of other fuels are expected to have minor changes), GHG emissions from energy consumption in 2030 are expected to increase 8.2–10.7 per cent in 2030 and 9.7–11.7 per cent in 2035 compared with the 2015 level. During the review, the Russian Federation explained that limitation and reduction of GHG emissions and removals is not the draft strategy's primary objective; however, the implementation of the draft strategy would provide GHG emission reductions as co-benefits.

36. **Renewable energy sources.** The Russian Federation is increasing renewable energy production, which is currently dominated by hydropower. Solar and wind power capacities are supported by a number of regulatory acts that allow renewable sources to start penetrating the electricity market. Law No. FZ-35 on Electricity Production of 26 March 2003, as amended in 2007, requires the Party to adopt strategic national targets for the development of renewable energy and provides the basis for additional penetration of renewable energy through various support mechanisms, such as the sale of electric power under power supply contracts of qualified RES-based generating facilities or the obligation of grid companies to buy electricity from RES-based generating facilities with regulated tariffs for loss compensation. The law also provides for compensation of the cost of connecting to RES-based generating facilities.

37. During the review, the Russian Federation provided information regarding resolution no. 1472-r of 28 July 2015, which provides target capacity of RES implementation to 2024, marginal capital and operating costs, and target localization indicators to calculate the price of power for a single RES-based generating facility. The Party also provided information regarding Decree No. 449 of 28 May 2013, which regulates the terms of delivery of power

to the wholesale market, the selection process for RES projects and the pricing system for RES power supply agreements. Both documents aim at creating economic incentives for the development of main and/or auxiliary equipment for RES-based electricity generation. Furthermore, the latest amendments to Law No. FZ-35 allow for penetration of microgeneration in the retail power market and therefore facilitate private sector opportunities to sell surplus energy to the grid and allow for further expansion of RES.

38. By the end of 2015, the total installed capacity of renewable energy facilities reached 53.5 GW, or about 20 per cent of the total installed capacity in the Russian Federation (253 GW). By 2035, according to the draft energy strategy, the production of RES-based electricity should increase 14 times (from 2 to 29 billion kWh), and the installed capacity of the corresponding power plants should grow 23 times (from 0.4 to 9 GW). In the period 2013–2016, within the framework of competitive selection, 119 RES projects with a total capacity of more than 2 GW and a total value of more than RUB 300 billion were selected (wind power plants, 0.8 GW; solar power plants, 1.2 GW; and small hydrogeneration facilities, 0.07 GW). The Russian Federation became a member of the International Renewable Energy Agency in 2015.

39. **Energy efficiency.** Measures relating to energy efficiency are the most important mitigation actions as they generate social, economic (economy-wide), climate and environmental benefits. The main focus of the current legislative framework is energy and resource efficiency in the power sector, including the oil and gas production and processing industry. The state programme Energy Efficiency and Energy Development was approved by Decree No. 321 of 15 April 2014, and updated in 2015, 2016 and 2017, with the latest changes in Decree No. 375 of 31 March 2017. The programme aims at improving energy efficiency in and reducing environmental impacts by the energy sector. It has seven subprogrammes, which are focused on saving energy; modernizing the power sector; developing RES; increasing energy efficiency; supplying the domestic market with reliable high-quality and economically feasible electricity and heat; developing the oil, gas and coal industries; and promoting innovative development of fuel and energy facilities. Seven target indicators were developed to measure the implementation of the subprogrammes; however, the level of implementation of the programme targets was not presented in the NC7 and could not be clarified during the review.

40. Since 2015, regional energy efficiency programmes have been developed. These regional programmes are financed from regional budgets and through private investment.

41. The NC7 contains an assessment of the Russian Federation's economic potential in terms of energy efficiency measures across the power production and transmission and industrial sectors for a total emission reduction of 347,560 kt CO_2 eq, which is 12.4 per cent of the country's total emissions in 2015. However, in the NC7, the Party did not transparently indicate which of the energy efficiency measures were included in the assessment.

42. The ERT noted that the Russian Federation has strong corporate programmes in innovative development, energy efficiency and energy saving, accompanied by a reduction in GHG emissions. Corporations are obliged to prepare an annual inventory of GHG emissions in accordance with the guidelines issued by order no. 300 of the Ministry of Natural Resources and Environment of 30 June 2015 and to implement its Energy Saving and Energy Efficiency programmes. According to the NC7, Gazprom is planning to reduce its GHG emissions by 48,600 kt CO_2 eq by 2020 compared with the 2011 level, and in the period 2014–2016 already achieved a cumulative GHG emission reduction of 60,100 kt CO_2 eq.

43. **Residential and commercial sectors.** The ERT noted that the NC7 does not contain information regarding specific national policies targeting the residential and commercial sectors with the exception of Decree No. 275 of 7 March 2017 on introducing amendments to acts on the establishment of priority energy efficiency requirements for buildings and structures. The Russian Federation is implementing measures in cooperation with international organizations, such as the joint UNDP/GEF project Transformation of the Market to Promote Energy-Efficient Lighting in Russia. From 2012 to 2017, the programme comprised pilot projects on energy-efficient street illumination in cities in four regions of the Russian Federation (Sarov in Nizhny Novgorod; Sumerl in the Republic of Chuvashia; Dimitrovgrad in Ulyanovsk; and Suzdal, Kovrov and Gus-Khrustalny in Vladimir). Direct

emission reductions resulting from the implementation of projects in the programme are expected to amount to 28,000 kt CO_2 eq to 2037.

44. The project Building Energy Efficiency in the North West of Russia is being implemented in cooperation with the GEF, UNDP and the European Bank for Reconstruction and Development, with the Federal State Budgetary Agency–Russian Energy Agency of the Ministry of Energy acting as implementing agency. The aim of the project is to provide local capacity-building and demonstrate locally implemented energy-efficient and energy-saving technologies and solutions in the construction, overhaul and maintenance of buildings in the north-west of the country. The expected result is a GHG emission reduction of 96.5 kt CO_2 eq to 2037.

45. **Transport sector.** The strategic priority development areas related to climate change for the transport sector, such as a fuel switch in road transportation from gasoline and diesel to natural gas, an increase in energy efficiency in rail transportation and aviation, the introduction of electric vehicles in public transportation and private initiatives for electric vehicles, are prescribed in regulatory documents. The transport strategy of the Russian Federation to 2030 is the main overarching policy for the transport sector. Its main goals are to create conditions that will reduce the impact of transport on the environment and to ensure the compliance of the fuel production industry's operating activities with international environmental standards. It is expected that the share of the vehicle fleet with hybrid electric motors and engines using alternative types of fuel in 2020 will be 26–29 per cent and in 2030 will be 49–54 per cent.

46. In 2013, an order on regulating the use of gas motor fuel, including natural gas, was signed (order no. 767-r of 13 May 2013). According to the order, by 2020 at least half of the public transport in major Russian cities (those with a population of more than one million people) should be converted to natural gas. The comprehensive plan of measures to expand the use of natural gas as a motor fuel, which is a draft of the State programme Expansion of the Use of Natural Gas as a Motor Fuel for Transport and Special-Purpose Vehicles for the period 2018–2022, has been prepared and sent to the Government of the Russian Federation. The goal of the programme is to reduce the negative impact of transport on the environment by stimulating the use of natural gas as a motor fuel. The programme comprises five subprogrammes, each covering a mode of transport: road, rail, sea and river, air, and special-purpose vehicles.

47. A comprehensive plan of measures to support the manufacturing and use of environmentally friendly transport has been approved by the Government. The plan includes measures for creating mechanisms to stimulate the production and use of clean transport. According to the NC7, the constituent entities of the Russian Federation, as a result of these measures, put into service 9,100 buses and 9,700 utility vehicles fuelled by natural gas, 204 electric vehicles, 2,500 electric trolleybuses and 1,700 trams. Furthermore, in 2016, 44 automotive filling stations for compressed natural gas were put into operation with a view to building 78 more in 2017.

48. Corporate programmes (e.g. of Russian Railways and Aeroflot) accompanied by a reduction in GHG emissions are under implementation. In addition, the Ministry of Transport, in cooperation with UNDP, is implementing the project Reducing Greenhouse Gas Emissions from Road Transport in Russia's Medium-sized Cities. Kazan and Kaliningrad are demonstration projects for the development of low-carbon transport in a number of medium-sized cities in the Russian Federation and for the formulation of State policy, regulatory and legal frameworks and organizational links that will facilitate the replication of sustainable urban transport projects (in 2016, five cities were selected for project replication: Irkutsk, Krasnoyarsk, Penza Rostov-on-Don and Tyumen). The expected emission reductions amount to 179.4 kt CO_2 eq to 2037.

49. The NC7 includes information on how the Russian Federation promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. In accordance with the requirements of ICAO, the Russian Federation has developed and approved an action plan for limiting GHG emissions from civil aviation, according to which CO_2 emissions from fuel combustion in aviation will be limited to 56 million tonnes by 2030, of which 35 million tonnes come from international aviation. In

addition, the Party implements actions in relation to the energy efficiency coefficient of vessels, satisfying the requirements of IMO's Marine Environment Protection Committee.

50. **Industrial sector.** The Russian Federation reported in its NC7 several PaMs for selected industrial subsectors, such as the programme for the development of the Russian coal industry to 2030, the aims of which include to create new coal production centres and to ensure an average annual increase in the volume of coal reserves; the introduction of new and upgraded coal production capacities; and a decrease in the energy intensity of coal production and processing.

51. The strategy for the development of ferrous metallurgy in Russia for the period 2014–2020 and the future to 2030 was approved in 2014 (order no. 839 of the Ministry of Industry and Trade of 5 May.2014). It has the aims of stimulating demand for products from metallurgical enterprises, improving mining and metallurgical production, and decreasing the resource intensity of the production of metal products. The strategy for the development of non-ferrous metallurgy in Russia for the period 2014–2020 and the future to 2030 was approved by the same order and aims to ensure demand for non-ferrous metals and products and to implement effective resource-saving and environmentally friendly technologies.

52. The strategy for the development of the chemical and petrochemical industry of Russia to 2030 (approved by order no. 651/172 of the Ministry of Industry and Trade and the Ministry of Energy of 8 April 2014) aims to modernize existing capacities, to create new capacities based on progressive and best available technologies and to reduce the negative impacts of chemical and petrochemical production on the environment.

53. The strategy for the development of the building materials industry and industrial housing construction to 2020, the strategy for the development of the construction materials industry to 2020 with a perspective to 2030, and the draft strategy for the innovative development of the construction industry to 2030, among other strategies, aim for modernization and technological development in the industrial base of industrial housing construction; the formation of a high-technology, competitive, sustainable and balanced building materials industry; and the introduction of energy-efficient technologies for cement production.

(b) Policies and measures in other sectors

54. **Industrial processes and product use.** PaMs regarding emissions from industrial processes are described under the industry and construction section in conjunction with PaMs addressing energy-related emissions. Process-related emissions are reduced through modernization of production (iron and steel, non-ferrous metallurgy and chemicals), and through the implementation of the best available technologies following Government order no. 2674-r (which defined the list of areas of application of the best available technologies) in the non-ferrous metallurgy, chemicals and petrochemical industries and construction material industries. No specific measures were reported in the NC7 for fluorinated gas substitutes for ozone-depleting substances and for emissions from other product manufacture and use.

55. **Agriculture.** National PaMs implemented in agriculture and land use mainly aim at adapting to climate change. No specific PaMs for mitigation of GHG emissions are reported to be in place at the national or local level in the agriculture sector, although some mitigation co-benefits could be achieved through implementing the adaptation measures. The Ministry of Agriculture is working on introducing slow-acting fertilizers with nitrification inhibitors and agro-technology that aims to reduce the use of mineral nitrogen fertilizers for crop production.

56. **LULUCF.** The forestry sector has great importance in the Russian Federation climate policy context owing to its planned significant share in the national economy and planned contribution to the Party's 2030 target. The Federal Agency for Forestry developed the State programme Development of Forestry for the period 2013–2020, which was amended in 2017 taking into account the State policy framework for the use, protection and reproduction of forests in the Russian Federation to 2030. The main focus of the framework and programme is to create conditions that will increase the effectiveness of the protection, reproduction and rational multipurpose and sustainable use of forests while preserving their ecological

functions and biological diversity. An increase in the effectiveness of forest management will contribute to an increase in the absorption of CO_2 from the atmosphere.

57. During the review, the Russian Federation provided information on forestry-related activities that decrease forest losses caused by fires, harmful organisms and illegal logging. and that enhances the potential of forests to sequester GHGs, such as reducing wood losses resulting from fires; reducing the influence of pests and diseases and other adverse impacts on forests, including illegal logging; extending forest areas through afforestation and forest regeneration; and increasing forest productivity through tending operations, including adapting forest vegetation to climate change.

58. Specific climate change mitigation and adaptation measures have been adopted in the sector, such as the Green Shield Law (Law No. 353, operational as of 1 January 2017). So far, 16 regions are establishing 'green shields' around regional centres, and a total of 1,500,000 ha of new and existing forests within settlements have been registered to serve as wind shields.

59. **Waste management.** The Russian Federation is in the process of reforming and upgrading its waste management system to be more environmentally friendly and resource-efficient. Law No. 89 on Waste Production and Consumption, as amended on 29 December 2014, and other legislation, such as Decree No. 284 of 9 April 2016 introducing the obligation to pay a recycling fee (introduced from 2017), provide the legal basis for the Party's transition to a new waste management system, which follows the waste management hierarchy of avoid, reduce, reuse, recycle, recover, treat and only then dispose.

60. Legislation in the Russian Federation is implemented in three stages. Regarding the new waste management system, in stage one, the legal basis was developed for recycling and reuse, for introducing fees and for establishing an extended producer responsibility mechanism and the Institute of Regional Operators for Solid Waste Management. In stage two, the prohibition of disposal of certain waste products containing useful materials was introduced together with an expanded list of recyclable goods. In addition, during this stage, regional schemes and programmes were approved and environmental fees that had been collected were redistributed to regional operators. During the review, the Russian Federation provided information on stage three, which started in 2018. In this stage, actions are foreseen to increase the separation of waste by the population and a video monitoring system for the municipal solid waste disposal in landfills is to be implemented. Recycling of glass, polyethylene terephthalate (PET plastic), composite materials, paper, tin containers, e-waste, lamps, furniture and tyres is currently in place; however, the separate collection and treatment of biodegradable waste is not foreseen.

61. Law No. 416-FZ, effective as of 1 January 2019, on Water Supply and Sanitation, has been supplemented by a new chapter, "Regulation of wastewater discharge into centralized water disposal systems" and new concepts have been introduced: "local treatment plant or device"; "sewage disposal norms"; and "centralized system drainage of the settlement, urban district". The amendments will improve the operation of centralized treatment facilities and increase the amount of effluent that will be treated by them, and, ultimately, improve the quality of calculations of their GHG emissions.

(c) Minimization of adverse impacts in accordance with Article 2 and Article 3, paragraph 14, of the Kyoto Protocol

62. In the NC7 the Russian Federation reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts on other Parties, especially developing country Parties. In particular, the Russian Federation reported that it exports natural gas to developing countries in the Commonwealth of Independent States, South-East Asia and the Pacific region, which substitutes for more carbon-intensive fossil fuels in those importing countries, thus reducing their emissions.

63. Further information on how the Russian Federation strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties

was reported in the 2018 annual submission. The Party reported that it carries out several activities in this regard, which include promoting alternative energy in developing countries through technology transfer, constructing and integrating energy facilities using Russian equipment and materials, training personnel in the construction of facilities, and compensating for GHG emissions associated with the production and transportation within the Russian Federation of exported materials and equipment. The Russian Federation also provided capacity-building for developing countries through the training of specialists in environmental protection, meteorology and climatology, as well as in technology, and it provided international assistance regarding recovery from natural disasters.

(d) Assessment of adherence to the reporting guidelines

64. The ERT assessed the information reported in the NC7 of the Russian Federation and identified issues relating to completeness, transparency and adherence to the reporting guidelines on NCs. The findings are described in table 8.

Table 8
Findings on policies and measures, including those in accordance with Article 2 of the Kyoto Protocol from the review of the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 14 Issue type: transparency Assessment: encouragement	It was not clear from the NC7 whether, in reporting, the Russian Federation prioritized those PaMs or combinations of PaMs which have the most significant impact in affecting GHG emissions and removals. The Russian Federation did not describe the effects of most of the reported PaMs. For those PaMs for which the effects were reported, no information was provided on the methodology or assumptions used to estimate the effects. During the review, in response to questions raised by the ERT, the Russian Federation clarified that PaMs are prioritized in principle on the basis of the importance of the corresponding sector to the Party. The Party outlined the challenges it faces in estimating the effects of its PaMs, such as their vast cross-sectoral scope and their interdependencies. The ERT encourages the Russian Federation, in reporting in its next NC, to prioritize the PaMs that have the most significant impact in affecting GHG emissions and removals.
2	Reporting requirement[a] specified in paragraph 14 Issue type: transparency Assessment: encouragement	The Party did not clearly indicate those PaMs which are innovative and/or effectively replicable by other Parties. During the review, the Russian Federation provided a few examples of PaMs, such as deployment of renewable energy sources in remote locations or sustainable mobility measures implemented at local level (municipality of Moscow), which seem to be innovative in the Russian Federation. The ERT encourages the Russian Federation in the next NC to clearly indicate which PaMs are considered to be innovative and/or replicable by other Parties.
3	Reporting requirement[a] specified in paragraph 39 Issue type: completeness Assessment: encouragement	The Russian Federation has not reported the total expected effect of planned PaMs. During the review, the Party elaborated on planned measures, such as the Federal Law on governmental regulation of GHGs and GHG monitoring measures at the company level and explained that the total effect of these measures could not be estimated. The ERT encourages the Party to report an expected total effect of planned PaMs or clarify the rationale for not reporting the total effect of such measures.
4	Reporting requirement[a] specified in paragraph 16 Issue type: completeness	The Russian Federation did not report on action taken to implement commitments under Article 4, paragraph 2(e)(ii), of the Convention, which requires Parties to identify and periodically update their policies and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: encouragement	During the review, the Russian Federation acknowledged the issue. The ERT encourages the Russian Federation to report in its next NC on action taken to identify activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur and to report on the results of such action.
5	Reporting requirement[a] specified in paragraph 17 Issue type: completeness Assessment: recommendation	The NC7 includes information on PaMs in tabular format; however, according to the UNFCCC reporting guidelines on NCs, textual descriptions of the principal PaMs in each sector should also be provided. During the review, in response to questions raised by the ERT, the Russian Federation explained its interpretation of the requirement, namely that provision of tabular information is sufficient to provide an understanding of the context of PaMs included in the report. The ERT recommends that in its next NC the Russian Federation include, in addition to the text in the tabular format, further textual descriptions of its principal sectoral PaMs.
6	Reporting requirement[a] specified in paragraph 21 Issue type: transparency Assessment: encouragement	The NC7 provides limited information on institutional arrangements for monitoring GHG mitigation policy, such as on the overall division of responsibilities among federal ministries and agencies. During the review, the Russian Federation explained that federal ministries monitor the PaMs implemented in the sectors under their responsibility and report on progress to the Ministry of Economic Development, which has overall responsibility for monitoring the implementation of PaMs. When the regions have voluntary regional PaMs, they monitor them and report to the Ministry of Economic Development. Specific indicators related to each policy or measure are monitored; however, these may not be directly linked with GHG emissions. The ERT encourages the Russian Federation to increase the transparency of the information reported on institutional arrangements for the monitoring of GHG mitigation policies in its next NC through including the roles of national, regional and local government.
7	Reporting requirement[a] specified in paragraph 23 Issue type: encouragement	The Russian Federation reported in its NC7 a quantitative estimation of the impacts of a few individual PaMs or groups of PaMs, as appropriate. The ERT noted that the impact on emissions of most individual PaMs is evaluated qualitatively rather than quantitatively. The ERT encourages the Russian Federation to include in its next NC quantitative estimates of further impacts of individual PaMs or groups of PaMs or clearly explain why this may not be possible due to its national circumstances.
8	Reporting requirement[a] specified in paragraph 24 Issue type: completeness Assessment: encouragement	The Russian Federation did not report in the NC7 information on the costs of the implementation of PaMs, on the non-GHG mitigation benefits of PaMs or on how PaMs interact with other PaMs at the national level. The costs of measures were available only for projects implemented in cooperation with international organizations. During the review, the Russian Federation was unable to provide further information on the costs of PaMs. The ERT encourages the Russian Federation to include in its next NC information on the costs of PaMs, on the non-GHG mitigation benefits of PaMs and on how PaMs interact with other PaMs at the national level, addressing this issue in combination with the estimation of the effects of PaMs on GHG emission reduction or clearly explain why such information could not be provided.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
9	Reporting requirement[a] specified in paragraph 25	The Russian Federation did not report on how it believes that its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.
	Issue type: transparency	During the review, the Russian Federation was unable to provide additional information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions.
	Assessment: recommendation	The ERT recommends that the Russian Federation include in its next NC information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.

Note: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

[a] Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

65. The Russian Federation reported in its NC7 updated projections for 2020 and 2030 relative to actual inventory data for 2014 under a WEM scenario. In its BR2 the Russian Federation has not reported on updated emission projections compared to BR1/NC6. The WEM scenario reported by the Russian Federation in its NC7 includes implemented and adopted PaMs. For the WEM scenario, national total GHG emissions are reported excluding and including the LULUCF sector.

66. In addition to the WEM scenario, the Russian Federation reported the WAM and WOM scenarios. National total GHG emissions under the WAM scenario are reported excluding and including the LULUCF sector. The WOM scenario from 2008 to 2030 is based on extrapolation of the average emission trend over the period 1998–2007. The ERT noted that this is a valid approach and is in accordance with the UNFCCC reporting guidelines on NCs, but it should be taken into account that parameters such as average GDP growth, the energy mix, and the mix of technologies used and status from the period 1998–2007 are also extrapolated.

67. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, but only for the energy sector (for the WEM and WAM scenarios) and the IPPU sector (for the WEM scenario), and not on a gas-by-gas basis for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case). The projections are provided in an aggregated format for the energy and IPPU sectors as well as for a Party total using global warming potential values from the IPCC Fourth Assessment Report.

(b) Methodology, assumptions and changes since the previous submission

68. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the BR2. The Russian Federation did not report supporting information further explaining the methodologies and the changes made since the BR2 and BR1/NC6. During the review, in response to a question raised by the ERT, the Party presented some information on the institutional procedures and methodologies used for the projections in the NC7, namely that an updated modelling study and updated sectoral assumptions for industry, agriculture and waste have been developed and formed the basis for the information on projections reported in the NC7.

69. The methodology was outlined as follows. On the basis of updated macroeconomic information (GDP, fuel price forecasts) provided by the Ministry of Economic Development, the Ministry of Energy updates its own long-term energy strategy. This strategy is sent to the Ministry of Economic Development for evaluation. Together with the Ministry of Economic Development's assumptions for LULUCF, this information is sent to the Center for Energy Efficiency, where a modelling study is performed. Based on the outcome of the study, two scenarios for energy are selected by the Ministry of Economic Development (although the ERT noted that two may also have been selected for LULUCF, given the difference observed by the ERT between the reported totals including and excluding LULUCF in CTF table 6) and combined with its assumptions for transport, agriculture and waste and with updated information on long-term forecasts for industry from the Ministry of Industry and Trade.

70. IGCE compiled the information received from the Ministry of Economic Development for the projections chapter of the draft NC7. This draft was sent to all ministries for review and they returned their comments to IGCE. IGCE then produced the final draft of the projections for the NC7, which it sent to Roshydromet. Roshydromet was responsible for submitting the finalized NC7 to the UNFCCC.

71. From the information reported in the NC7 and provided during the review in response to a question raised by the ERT, the ERT could not conclude whether the model used for the energy projections provides for consistent presentation of GHG emission projections for the energy sector related to the PaMs identified above. The NC7 does not include information on the type of model, the assumptions used, the limitations of the model and other key modelling parameters (in accordance with paragraph 43 of the UNFCCC reporting guidelines on NCs). The NC7 does not clarify which PaMs listed in the PaMs section are included in the WEM and WAM scenarios for the energy sector (in accordance with paragraphs 43–53 of the UNFCCC reporting guidelines on NCs).

72. For the IPPU sector, the Russian Federation reported in the NC7 that the projections were based solely on the extrapolation of emission trends in the major industries. These industries together account for 94.7 per cent of the total emissions from the IPPU sector and the trends are considered to be valid for the whole sector. The ERT noted, however, that for several subsectors in industry, as listed in table V.4 of the NC7, the projected emissions first show a decrease between 2014 and 2020, followed by an increase between 2020 and 2030. During the review, the Party could not clarify the reason for this inconsistency in GHG emission trends.

73. The NC7 contains a description of four scenarios for the LULUCF sector; however, a description of the relationship between these scenarios and the reported WEM and WAM scenarios, which also include LULUCF, was not included. For the agriculture and waste sectors, the NC7 does not contain any information on scenarios or projections.

74. To prepare its projections, the Russian Federation relied on the key underlying assumption of GDP growth rate. This assumption was reported in CTF table 5. The assumption was updated on the basis of the most recent economic developments known at the time of the preparation of the projections. The ERT noted, however, that information on this assumption in the submission is inconsistent: in table V.1 of the NC7, GDP growth rates are provided for two scenarios, only to 2020; and in CTF table 5, a single set of GDP growth rates is provided, to 2030, which are different from those in table V.1 of the NC7.

75. The ERT noted that the Russian Federation provided GDP energy intensities under the WEM and WAM scenarios for the period 2020–2030 in CTF table 5. The ERT is of the opinion that such scenario outcomes should not be reported in CTF table 5 but may be used for a scenario analysis or a quantitative assessment to be described in the NC.

(c) Results of projections

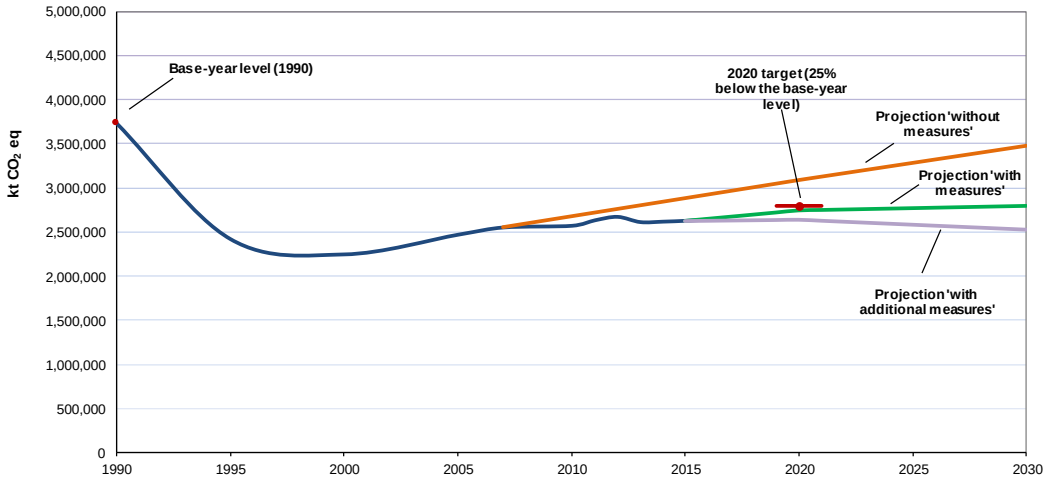
76. The projected emission levels under different scenarios and information on the quantified economy-wide emission reduction target are presented in table 9 and the figure below.

Table 9
Summary of greenhouse gas emission projections for the Russian Federation

	GHG emissions (kt CO_2 eq per year)	*Changes in relation to 1990 level (%)*
Quantified economy-wide emission reduction target under the Convention (base year 1990)	3 767 791.96	NA
Inventory data 1990	3 767 792.02	NA
Inventory data 2015	2 651 211.99	–29.6
WOM projections for 2020	3 084 700.00	–18.1
WEM projections for 2020	2 743 000.00	–27.2
WEM projections with LULUCF for 2020	2 381 600.00	–39.4
WAM projections for 2020	2 645 000.00	–29.8
WOM projections for 2030	3 470 900.00	–7.9
WEM projections for 2030	2 791 900.00	–25.9
WEM projections with LULUCF for 2030	2 479 900.00	–36.9
WAM projections for 2030	2 528 200.00	–32.9

Note: The projections are for GHG emissions without LULUCF, unless otherwise specified.

Greenhouse gas emission projections reported by the Russian Federation



Sources: (1) data for the years 1990–2016: the Russian Federation's 2018 annual inventory submission, version 1.0; total GHG emissions excluding LULUCF; (2) data for the years 2016–2030: the Russian Federation's NC7 and BR3 CTF table 6; total GHG emissions excluding LULUCF.

77. The Russian Federation's total GHG emissions excluding LULUCF are projected to be 2,743,000 and 2,791,900 kt CO_2 eq in 2020 and 2030, respectively, under the WEM scenario, which is a decrease of 27.2 and 25.9 per cent, respectively, below the 1990 level (based on BR3 CTF table 6). Under the WAM scenario, emissions in 2020 and 2030, amounting to around 2,645,000 and 2,528,200 kt CO_2 eq, respectively, are projected to be lower than those in 1990 by 29.8 and 32.9 per cent, respectively.

78. The 2020 projections suggest that the Russian Federation can be expected to achieve its 2020 target under the Convention. However, because it is not clear from the reported information whether the scenario definitions adhere to the UNFCCC reporting guidelines on NCs, so the ERT could not make a final assessment of the likelihood of the Party achieving its target in 2020.

79. The Russian Federation presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in table 10.

80. As the Russian Federation provided only partial projections by sector, an assessment of the expected effects of PaMs could be made only for the energy and IPPU sectors under the WEM scenario. Emission projections for transport (not included in energy), agriculture, waste and LULUCF were not reported separately in CTF table 6. In 2020, emissions from the energy sector are expected to be 867,797.95 kt CO_2 eq (or 28.2 per cent) below the 1990 level and 14,933.07 kt CO_2 eq (0.7 per cent) above the 2015 level. In 2030, energy emissions amount to 2,277,100 kt CO_2 eq, which is 800,097.95 kt CO_2 eq (26.0 per cent) below the 1990 level. Compared with 2020, emissions from energy in 2030 are 67,700.00 kt CO_2 eq (3.1 per cent) higher. In 2020, emissions from the IPPU sector are expected to decrease by 72,575.12 kt CO_2 eq (24.3 per cent) compared with the 1990 level and amount to 225,900.00 kt CO_2 eq. Compared with the 2015 level, emissions in 2020 are 15,919.45 kt CO_2 eq (7.6 per cent) higher. In 2030, emissions from IPPU are expected to decrease by 60,275.10 kt CO_2 eq (20.2 per cent) compared with the 1990 level and amount to 238,200.00 kt CO_2 eq. Compared with the 2020 level, emissions in 2030 are 12,300.00 kt CO_2 eq (5.4 per cent) higher.

Table 10
Summary of greenhouse gas emission projections for the Russian Federation presented by sector

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2030*		*1990–2020*		*1990–2030*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (including transport)	3 077 197.95	2 209 40.00	2 144 800.00	2 277 100.00	2 018 600.00	–28.2	–30.3	–26.0	–34.4
Transport	NE	NE	NE	NE	NE	NA	NA	NA	NA
Industry/ industrial processes	298 475.12	225 900.00	NE	238 200.00	NE	–24.3	NA	–20.2	NA
Agriculture	315 383 17	NE	NE	NE	NE	NA	NA	NA	NA
LULUCF[a]	162 250.90	–364 000.00	–385 200.00	–312 000.00	–323 400.00	–322.7	–337.4	–292.3	–299.3
Waste	76 735 72	NE	NE	NE	NE	NA	NA	NA	NA
Other (specify)						NA	NA	NA	NA
Total GHG emissions without LULUCF	**3 767 791.96**	**2 743 000.00**	**2 645 000.00**	**2 791 900.00**	**2 528 200.00**	**–27.2**	**–29.8**	**–25.9**	**–32.9**

Source: The Russian Federation's BR3 CTF table 6.

[a] Emissions and removals for LULUCF were estimated by the ERT from the data reported data in the NC7 and BR3 for the WEM and WAM scenarios.

81. If additional measures are considered (i.e. under the WAM scenario), the emissions by 2020, which are presented only for the energy sector, show a further reduction compared with the WEM scenario. In 2020, emissions from energy under the WAM scenario are

expected to amount to 2,144,800 kt CO_2 eq, or 932,397.95 kt CO_2 eq (30.3 per cent) below the 1990 level. In 2030, emissions from energy are expected to amount to 2,018,600 kt CO_2 eq, or 1,058,597.95 kt CO_2 eq (34.4 per cent) below the 1990 level. Compared with 2020, emissions from energy in 2030 are 126,200.00 kt CO_2 eq (5.9 per cent) lower. Emission projections for transport (not included in energy), industry, agriculture, waste and LULUCF were not reported separately.

82. When comparing the reported national projections with the projections for the energy and IPPU sectors under the WEM scenario, the ERT determined that the combined projected emissions for these two sectors account for a rather stable share of 90 per cent of national GHG emissions, excluding LULUCF. This implies the share of projected emissions from the agriculture and waste sectors under the WEM scenario would also remain rather constant. However, the NC7 does not contain information to confirm this assumption.

(d) Assessment of adherence to the reporting guidelines

83. The ERT assessed the information reported in the NC7 of the Russian Federation and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 11.

Table 11
Findings on greenhouse gas emission projections reported in the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 29 Issue type: transparency Assessment: recommendation	It is not clear from the description provided in the NC7 whether the WEM and WAM scenarios reported by the Russian Federation are consistent with the definitions in the UNFCCC reporting guidelines for NC. The Party provided a definition of its WEM scenario in the NC7, reporting that it includes policies for increasing energy efficiency, developing nuclear power generation, developing non-traditional energy sources and modernizing industrial installations. However, it is not clear from this description whether the WEM scenario is consistent with that in the UNFCCC reporting guidelines on NC and whether it encompasses currently implemented and adopted PaMs. For the WAM scenario, the Party reported in the NC7 that it includes the effects of energy efficiency improvement measures, which include applying best available technologies and implementing national energy strategies. However, it is not clear from the description whether the WAM scenario is consistent with that in the UNFCCC reporting guidelines on NCs and whether it encompasses planned PaMs in addition to those included in the WEM scenario. The Russian Federation did not report transparently in the NC7 on whether the reported WEM and WAM scenarios are consistent with the definitions of these scenarios in the UNFCCC reporting guidelines on NCs. During the review, the Party was not able to provide further information in response to the questions raised by the ERT on this matter. The ERT reiterates the recommendation made in the previous review report that the Russian Federation transparently report in its next NC on whether its WEM scenario, and WAM scenario when reported, is defined in accordance with the definition in the UNFCCC reporting guidelines on NCs.
2	Reporting requirement[a] specified in paragraph 30 Issue type: completeness Assessment: encouragement	The Russian Federation did not report a sensitivity analysis of its projections in the NC7. During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT noted that the Russian Federation faces institutional challenges in developing a sensitivity analysis. The ERT reiterates the encouragement made in the previous review report for the Russian Federation to include in its next NC a sensitivity analysis of its projections.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
3	Reporting requirement[a] specified in paragraph 34	The Russian Federation reported sectoral projections for only two sectors (energy (WEM and WAM) and IPPU (WEM)) in the NC7. It did not report sectoral projections for transport (not included in energy), waste, LULUCF and agriculture.
	Issue type: completeness	During the review, the ERT noted that the Russian Federation faces institutional challenges in developing sectoral projections. In response to the questions raised by the ERT on this matter, the Party stated that the underlying studies and reports allowing emission projections to be reported on a sectoral basis are available.
	Assessment: recommendation	The ERT reiterates the recommendation made in the previous review report that the Russian Federation report in its next NC emission projections for the WEM scenario, and WAM and WOM scenarios when reported, on a sectoral basis, to the extent possible, using the same sectoral categories used in the PaMs section.
4	Reporting requirement[a] specified in paragraph 35	The Russian Federation did not report projections on a gas-by-gas basis in the NC7 for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case).
	Issue type: completeness	During the review, the ERT noted that the Russian Federation faces institutional challenges in developing projections by gas. In response to the questions raised by the ERT on this matter, the Party stated that the information required to report emission projections by gas is available, in principle, from underlying studies and reports.
	Assessment: recommendation	The ERT reiterates the recommendation made in the previous review report that the Russian Federation report in its next NC emission projections for the WEM scenario, and WAM and WOM scenarios when reported, on a gas-by-gas basis.
5	Reporting requirement[a] specified in paragraph 35	The Russian Federation did not report projections of indirect GHGs, such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.
	Issue type: completeness	During the review, the ERT noted that the Russian Federation faces institutional challenges in developing these projections. The Party was not able to provide further information in response to the question raised by the ERT on this matter.
	Assessment: encouragement	The ERT encourages the Russian Federation to include in its next NC projections of indirect GHGs.
6	Reporting requirement[a] specified in paragraph 36	The Russian Federation did not report on emission projections related to fuel sold to ships and aircraft engaged in international transport separately and not included in the national total in the NC7.
	Issue type: completeness	During the review, in response to a question raised by the ERT, the Russian Federation clarified that such projections are currently being developed by the Ministry of Transport and might be available by the end of 2018. In addition, the Party provided a document from the State Scientific Research Institute of Civil Aviation with projection scenarios for the aviation sector, both as a total and with international aviation treated separately. The document provided underlying assumptions to 2030, such as tonne-kilometre per year, specific energy consumption per tonne-kilometre, and derived fuel consumption and CO_2 emissions.
	Assessment: recommendation	The ERT noted that, according to the information provided during the review, the CO_2 emission from international aviation are projected to increase from 15,000 kt in 2014 to 27,000 kt in 2030 (80 per cent). The ERT noted, however, that the emission data for international aviation reported for 2006, 2010 and 2014 in the document are not consistent with the GHG emissions from international aviation reported in the 2018 annual GHG inventory submission – the GHG emissions reported in the document for these years are significantly higher for international aviation and for total emissions from aviation (14 to 49 per cent).
		The ERT reiterates the recommendation made in the previous review report that the Russian Federation include in its next NC, to the extent possible, emission projections related to fuel sold to ships and aircraft engaged in international transport, separately and not included in the national total.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
7	Reporting requirement[a] specified in paragraph 37 Issue type: completeness Assessment: encouragement	The Russian Federation reported projections in tabular format for 2020 and 2030 for the national totals and for the energy (WEM and WAM scenarios) and IPPU (WEM scenario) sectors. However, the Party did not report projections for other sectors in tabular format. During the review, the ERT noted that the Russian Federation faces institutional challenges in developing projections by sector. During the review, in response to the question raised by the ERT on this matter, the Party was not able to provide this information in tabular format, although it indicated that the relevant underlying information is available. The ERT encourages the Russian Federation to include in its next NC emission projections in tabular format by sector and gas for the years reported.
8	Reporting requirement[a] specified in paragraph 42 Issue type: transparency Assessment: encouragement	The Russian Federation reported the total effect of PaMs under the WEM and WAM scenarios as being the difference between the WOM scenario and these scenarios in 2020 and 2030 (table IV.11 in the NC7). However, the ERT noted that the definition of the WOM scenario is not consistent with that used for the WEM and WAM scenarios; therefore, these scenarios not comparable. During the review, the ERT noted that the Russian Federation faces institutional challenges in developing projections. During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT encourages the Russian Federation to report transparently in its next NC on the methodology applied to estimate the total effect of PaMs under its reported scenarios, which should adhere to the WEM scenario definition given in the UNFCCC reporting guidelines on NCs.
9	Reporting requirement[a] specified in paragraph 43 Issue type: completeness Assessment: encouragement	The Russian Federation did not report in the NC7 on the key characteristics of the models and methodologies applied, such as the type of model or approach used and did not provide a description of the original purpose of the model or approach and how it has been modified for climate change purposes or an explanation of how the model or approach used accounts for any overlap or synergies that may exist among PaMs. During the review, the ERT noted that the Russian Federation faces institutional challenges in reporting the key characteristics of the models and methodologies applied. During the review, in response to a question raised by the ERT, the Russian Federation provided limited information on the modelling study applied for the energy projections, including a link to the underlying scenario study report (in Russian). The ERT encourages the Russian Federation to include in its next NC, for each model or approach used, the information as listed in the UNFCCC reporting guidelines for NCs.
10	Reporting requirement[a] specified in paragraph 44 Issue type: completeness Assessment: encouragement	The Russian Federation did not provide references to detailed information on applied models and methodologies in the NC7. During the review, the ERT noted that the Russian Federation faces institutional challenges in reporting on references to detailed information on applied models and methodologies. During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT encourages the Russian Federation to include in its next NC references to more detailed information on the models and methodologies applied.
11	Reporting requirement[a] specified in paragraph 45 Issue type: completeness	The Russian Federation did not report on the changes in methodologies for projections between its NC6 and NC7 submission, although it did report updated projections in the NC7 in terms of the year of commencement and assumptions. During the review, the ERT noted that the Russian Federation faces institutional challenges in reporting on the changes in methodologies for projections. During the

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: encouragement	review, in response to the question raised by the ERT on this matter, the Russian Federation provided very limited information on the methodology applied for the reported projections in the NC7 in comparison with that applied in the BR2 (see para. 69). The ERT encourages the Russian Federation to include in its next NC information on the changes in methodologies for projections between the current and previous submissions.
12	Reporting requirement[a] specified in paragraph 46 Issue type: completeness Assessment: encouragement	The Russian Federation did not report on the sensitivity of projections to underlying assumptions, either qualitatively or quantitatively. During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT encourages the Russian Federation to report in its next NC on the sensitivity of projections to underlying assumptions, qualitatively and, where possible, quantitatively.
13	Reporting requirement[a] specified in paragraph 47 Issue type: transparency Assessment: encouragement	The Russian Federation did not provide information in tabular format on the key variables and assumptions used in the preparation of the projection scenarios, except for GDP. The Russian Federation reported GDP growth as the only key variable or assumption in the NC7. No other assumptions, such as population growth, tax level and fuel price, were reported. The ERT noted, however, that the values for GDP presented in the NC7 were not consistent with each other and the Party did not transparently report how the reported GDP values relate to the reported GHG projection scenarios. During the review, the Party was not able to provide further information or the reason for the observed inconsistencies in response to the question raised by the ERT on this matter. The ERT encourages the Russian Federation to report transparently in its next NC on the key variables and assumptions used in the preparation of its projections, and to present those in tabular format.
14	Reporting requirement[a] specified in paragraph 48 Issue type: completeness Assessment: recommendation	The Russian Federation did not provide information on factors and activities affecting the emission projections for each sector. During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT reiterates the recommendation made in the previous review report that the Russian Federation include in its next NC information on factors and activities affecting the emission projections for each sector.

[a] *Note*: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

[b] Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

84. In the NC7 the Russian Federation presented the expected effect of PaMs in 2020 and 2030 (table IV.11) and "accumulated" annual reductions in total GHG emissions in 1990, 1995, 2000, 2005, 2010, 2011, 2012, 2013, 2014 and 2015 (table V.5). The ERT noted that these accumulated annual emission reductions are reported to be relative to 1990 and that they do not represent the total effect of PaMs.

85. The Russian Federation reported that the total estimated effect of its adopted and implemented PaMs is 341,700 kt CO_2 eq in 2020 and 679,000 kt CO_2 eq in 2030, without accounting for LULUCF. Table 12 provides an overview of the total effect of PaMs as reported by the Russian Federation.

Table 12
Projected effects of the Russian Federation's, implemented and adopted policies and measures by 2020 and 2030

	2020	*2030*
Sector	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Effect of implemented and adopted measures (kt CO_2 eq)*
Energy (without transport)	NE	NE
Transport	NE	NE
Industrial processes	NE	NE
Agriculture	NE	NE
Land-use change and forestry	NE	NE
Waste management	NE	NE
Total	341 700	679 000

Source: The Russian Federation's NC7.
Note: The total effect of implemented and adopted PaMs is defined as the difference between the WOM and the WEM scenario.

(b) Assessment of adherence to the reporting guidelines

86. The ERT assessed the information reported in the NC7 of the Russian Federation and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 13.

Table 13
Findings on the assessment of the total effect of policies and measures from the review of the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 40 Issue type: transparency Assessment: recommendation	The Russian Federation reported the estimated and expected effect of implemented and adopted PaMs as the difference between the WOM and the WEM scenario. However, as it is unclear whether the definition of the WEM scenario is in accordance with the definition in the UNFCCC reporting guidelines on NCs, it is also unclear as to whether the total effect of PaMs estimated as the difference between the 'without measures' and 'with measures' scenario does indeed represent the total effect of adopted and implemented measures. During the review, the ERT noted that the Russian Federation faces institutional challenges in developing the scenarios. The Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT reiterates the recommendation made in the previous review report that the Russian Federation improve the transparency of its reporting by providing in its next NC the estimated and expected total effects of implemented and adopted PaMs, while using the scenario definition from the UNFCCC reporting guidelines on NCs.
2	Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: recommendation	The Russian Federation did not report the total effect of PaMs by gas, as required by the UNFCCC reporting guidelines on NCs. During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter. The ERT recommends that the Russian Federation report in its next NC the total effect of PaMs by gas.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
3	Reporting requirement specified in paragraph 41	The Russian Federation did not clearly indicate from which year onward it is assumed that PaMs are implemented or not implemented in making the calculations of the total effects of PaMs.
	Issue type: transparency	During the review, the Party was not able to provide further information in response to the question raised by the ERT on this matter.
	Assessment: encouragement	The ERT encourages the Russian Federation to indicate in its next NC from which year onward it is assumed that PaMs are implemented in making the calculations of the total effects of PaMs.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

3. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

Technical assessment of the reported information

87. In the NC7 the Russian Federation provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. The ERT noted that the Russian Federation does not have a target in the second commitment period of the Kyoto Protocol and therefore does not plan to use the market-based mechanisms.

D. Provision of financial and technological support to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol

88. The Russian Federation is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, the Russian Federation provided information in the NC7 on its provision of support to developing country Parties. The ERT commends the Russian Federation for reporting this information and suggests that it continue to do so in future NCs.

89. The Russian Federation provided financial support to developing countries through the Russia–UNDP Trust Fund for Development, which was launched in 2015 and has an allocation of USD 10 million specifically for climate change related projects through its Climate Change Window. Most projects financed by the Russian Federation through this mechanism are targeted to former Soviet Union countries; for example, the projects Addressing Climate Change Impact through Enhanced Capacity for Wildfires Management in Armenia (2017–2020) (USD 1 million) and Strengthening Preparedness and Response Capacity in Tajikistan (2017–2019) (USD 1 million). The Russian Federation also provided financial support to Pacific SIDS for disaster resilience in the amount of USD 7.5 million for the period 2016–2019 under the Russia–UNDP Trust Fund for Development. During the review, the Party provided additional information on the provision of financial support to developing countries under the Russia–UNDP Partnership as well as a list of projects funded under the Russia–UNDP Partnership and on humanitarian assistance provided to developing countries by the Russian Federation to avoid consequences of unfavourable weather and climate events.

90. The Russian Federation made core contributions to the GEF during the period 2011–2014. During the review, the Party clarified that it has not contributed to the GEF in recent years (2015–2017). In 2015, the Russian Federation allocated USD 1 million to the Global Soil Partnership of the Food and Agriculture Organization of the United Nations. During the review, the Party informed the ERT of its contribution to the IPCC Trust Fund in the amount of 100,000 Swiss francs for the period 2019–2021.

91. The Russian Federation provided technology development and transfer support in the area of nuclear power to Armenia, Bangladesh, China, Egypt, India, Iran (Islamic Republic of), Jordan and Nigeria (construction of nuclear power stations); and to Bolivia (Plurinational State of), Nigeria and Zambia (construction of centres of nuclear research).

92. The Russian Federation reported on its provision of capacity-building support through the UNIDO project on capacity-building for developing programmes for mitigation of global environmental problems to countries in the Commonwealth of Independent States (an amount of USD 442,480). The Party also reported on joint education and research programme activities on environmental and climate problems initiated upon an agreement between the Russian State Hydrometeorological University and national universities of Brazil, Mexico, Peru and Uzbekistan.

93. The ERT noted differences in the information provided in CTF tables 7(a)_2016, 7(a)_2015, 7(b)_2015, 7(b)_2016 and the text of the NC7, and identified possibilities for increasing the transparency of the information contained in the CTF tables. Table VII.1 of the NC7 indicates that the amount of financial support provided for disaster resilience in Pacific SIDS is USD 7.5 million for the period 2016–2019, while in CTF table 7(a)_2016, this amount is presented for 2016 only. During the review, the Russian Federation clarified that the total amount of financial support was disbursed in 2016 but will be used from 2016 to 2019. The ERT notes that in the next submission of the NC, the Party may wish to provide footnotes in the relevant CTF tables noting the implementation period if it differs from the year of disbursement.

94. In CTF table 7(a)_2015, the Russian Federation indicated that financial support was provided for the project Integrated Support to Rural Development: Building Resilient Communities in Armenia (USD 5 million). This information is not included in the text of the NC7. During the review, the Party informed the ERT that it provided financial support in the amount of USD 5 million for the project Integrated Support to Rural Development in the Tavush Region, Armenia (2015–2020) through the Russia–UNDP Partnership. The project supports rehabilitation of community infrastructures with a focus on improving energy efficiency, introducing water-saving technologies and ensuring access to safe drinking water.

95. In both CTF table 7(a)_2015 and CTF table 7(b)_2015, the Russian Federation indicated financial support was provided for the Vanuatu debris clearance initiative (USD 500,000). This information is not included in the text of the NC7. During the review, the Party confirmed that it provided this support to Vanuatu through the Russia–UNDP Partnership. The ERT notes that in the next submission of the NC, the Party may wish to improve its reporting of financial support by avoiding double counting in the CTF tables.

96. In CTF table 7(b)_2015, the Russian Federation omitted the amount of financial support it provided for "Kyrgyzstan / The humanitarian aid (earthquake)". During the review, the Party clarified that it provided RUB 17 million in financial support for humanitarian aid (earthquakes). The ERT notes that in the next submission of the NC, the Party may wish to provide full information for the financial support it reports.

97. In CTF table 7(b)_2015, the Russian Federation indicated financial support was provided for "Vanuatu / Contribution to UNDP (Cyclone Pam)" and "Vanuatu / Contribution to UNICEF (Cyclone Pam)". The ERT noted that CTF table 7(b) is designed to present information on the provision of public financial support through bilateral, regional and other channels. The ERT notes that, in the next submission of the NC, the Party may wish to improve its reporting of financial support in the CTF tables by providing information on support provided through UNDP and the United Nations Children's Fund in CTF table 7(a)_2015, which is designed for reporting multilateral support.

98. In CTF table 7(b)_2016, the Russian Federation provided information on its financial support of "LDCs / Contribution to UNDP (Climate Change Window)" in the amount of USD 3 million (disbursed) and USD 7 million (committed). This information is not consistent with the textual information provided in the NC7. The ERT notes that in the next submission of the BR, the Party may wish to improve its reporting of financial support by providing consistent information in the CTF tables and the text of the BR.

E. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

99. In the NC7 the Russian Federation provided the required information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. The Russian Federation provided a description of climate change vulnerability and impacts on biodiversity and natural ecosystems, coastal zones, buildings, infrastructure, transport, water resources, forestry, human health, drought and agriculture, and highlighted the adaptation response actions taken and planned at different levels of government. The ERT noted that the Party also provided information on the action taken to implement Article 4, paragraph 1(e), of the Convention with regard to cooperation in preparing for adaptation to the impacts of climate change.

100. The comprehensive plan for the implementation of the climate doctrine of the Russian Federation (resolution no. 730-r of 25 April 2011) provides the basis for addressing adaptation matters. In addition, a number of strategic documents have been developed that have adaptation components. Several of the most significant of these are the forecast of the long-term social and economic development of the Russian Federation to 2030; the strategy for activities in the field of hydrometeorology and related fields to 2030; the State programme Socioeconomic Development of the Russian Arctic Zone to 2020; the federal target programme Developing Agricultural Land Reclamation 2014–2020; and the Environmental Safety Strategy of the Russian Federation to 2025. All of these provided further direction to government agencies on enhancing preparedness for climate change.

101. The Russian Federation reported that climate change has the potential for both positive and negative impacts in the country. In the NC7, the Party reported that warming can benefit the agrarian sector of the economy if it adapts to the expected climatic changes. In order to stimulate the adaptation of agricultural production to climate change, the Ministry of Agriculture has developed a programme to increase productivity through rationally locating agricultural assets in the country, improving the structure of crops, promoting a higher proportion of crops with high protein content, developing breeding and seed production, transitioning to intensive technologies for cultivating agricultural crops, increasing the number of animals and their productivity through breeding, and modernizing technology.

102. The Russian Federation supports agricultural insurance for crop production within the framework of a single subsidy through the State programme Agriculture Development and Regulation of Agricultural Products, Commodities and Food Markets for 2013–2020. The financial provision of State support for agricultural insurance within the framework of the single subsidy is enabled through Law No. 415-FZ of 19 December 2016 on the Federal Budget for 2017, and for the Planning Period 2018 and 2019.

103. According to the NC7, buildings, transport and infrastructure in the permafrost zone are the most vulnerable to climate change. The comprehensive plan for the implementation of the climate doctrine provides a set of measures for minimizing the risk of unreliability in buildings, the transport system and infrastructure due to changes of the southern boundary of the zone of permafrost.

104. The NC7 includes information on the assessment of observed and future forest fire risks. In the period 1992–2016, the number of annual forest fires ranged from 10,300 to 43,400, encompassing forest areas ranging from 0.36 to 2.35 million ha. The largest losses of standing timber were registered in 2010: 93.1 million m^3. The Federal Agency for Forestry implements the measures envisaged by its plan for long-term adaptation to climate change and also implements a set of measures for improving the management of GHG emissions from forestry, which was approved by the Deputy Minister of Natural Resources and Environment on 28 March 2017.

105. In the NC7, the Russian Federation provided information on an integrated vulnerability and adaptation to climate change assessment for its two largest cities: Moscow and St. Petersburg. In 2015, a strategy for climate adaptation of St. Petersburg was developed, and it has been integrated into the strategy for the economic and social development of St. Petersburg to 2030. The city's engineering and transport infrastructure (roads, sewerage, gas pipeline) are the most susceptible infrastructure to damage from climate change. Experts predict that heatwaves, heavy rain and soil movement will result in the deterioration of highways and other roads, an increase in construction costs, and a slowing down of the city's development. The main objective of the strategy for climate adaptation is the mobilization of the municipal economy to take timely measures to reduce and prevent current and future climatic threats.

106. The draft resolution of the Moscow Government on "the environmental strategy of Moscow for the period until 2030" was issued in 2017, in which the following are assumed: the formation of an early warning system; the adaptation of structural elements of the drainage network (storm sewerage) to ensure trouble-free passage of storm water after heavy rain; the development and implementation of effective heating, ventilation and air-conditioning systems, taking into account climate change, to maintain comfortable living conditions at abnormal temperatures; the stimulation of rational water use and the conservation and protection of reserve sources of water; the development and implementation of innovative technologies that are protected from the formation of ice on the roofs and other structural elements of buildings and structures that do not allow icefall; and the monitoring of flood zones.

107. Table 14 summarizes the information on vulnerability and adaptation to climate change presented in the NC7 of the Russian Federation.

Table 14
Summary of information on vulnerability and adaptation to climate change reported by the Russian Federation

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	*Vulnerability*: (1) aridization due to an increase in evaporation and a decrease in precipitation in the warm period of the year; (2) an increase in climate extremes; (3) an increase in the frequency of droughts; (4) a drop in agricultural production; (5) a decrease in the quality of fruit and other crops; and (6) an increase in the spread of major pests and diseases of agricultural crops. *Adaptation*: (1) development of the agriculture sector in the non-chernozem zone; (2) optimization of the distribution of areas in which winter and spring crops are cultivated; (3) expansion of the cultivated areas of thermophilic crops (e.g. maize, sunflower, sorghum, soybean); (4) extension of horticulture and viticulture areas; (5) development of irrigated agriculture; (6) use of heat-resistant varieties; (7) creation of reserve stocks of food in order to ensure food security; (8) strengthening of the efficiency of federal and regional plant protection services; etc.
Biodiversity and natural ecosystems	*Vulnerability*: (1) a shift in the boundary of the vegetation zone to the north; (2) changes in ecosystem structures (in European Russia, forest areas will extend to the north and, under conditions of humid warming, also to the south; in Siberia, forest areas will decrease while floristic diversity may increase); (3) phenological changes; (4) changes in vegetation zone boundaries and altitudinal belts of vegetation in mountainous ecosystems; (5) loss of unique natural features in some natural reservations and protected areas as well as their ability to carry out essential environmental functions; (6) changes in migration routes of large mammals and birds due to desertification and aridization; and (7) a reduction in the range of polar bears. *Adaptation*: (1) preservation and restoration of the natural environment;[a] and (2) elimination of the accumulated harm to the natural environment due to economic activity and global climate change.
Coastal zones	*Vulnerability*: (1) the negative influence of anomalous flowering in resorts and fishing areas in the Azov, Baltic, Black and Caspian Seas; (2) coastal abrasion and flooding of coastal infrastructure and settlements on the Azov and Caspian Seas as a result of sea level rise; (3) disruption of transport and communications on the Azov, Black and Caspian Seas as a result of the increasing frequency of extreme cold in winter; and (4) an increase in the risk of oil pollution of the Arctic Ocean as a result of the intensification of shipping on the Northern Sea Route.

Vulnerable area	*Examples/comments/adaptation measures reported*
	Adaptation: (1) construction of protective hydraulic structures of concrete; (2) construction of protective dams from sand and pebble mixtures; (3) enforcement of coastal areas against erosion; (4) restoration of beaches; and (5) evacuation of properties and relocation or demolition of coastal infrastructure and settlements.
Drought	*Vulnerability*: an increase in the number of severe and extensive droughts covering large areas and more of the grain zone of the country. In the past 30 years, extensive droughts were observed in 1972, 1975, 1979, 1981, 1995, 1998 and 2002. The droughts of 1975 and 1981 covered all grain-producing regions of the country and droughts of such severity had not occurred since 1891. The increase in the frequency of severe and extensive droughts will be by 3.5 times in the northern and western parts of European Russia, by two times in the Volga-Vyatka region and by 1.5 times in the Central Chernozem and Ural regions.
	Adaptation: (1) use of drought-resistant and early ripening varieties; (2) correct placement of crops under crop rotation; (3) savings in water flow; (4) irrigation; (5) protection of plants from direct solar radiation; (6) use of evaporation depressants; (7) planting of forest belts; etc.
Fisheries	*Vulnerability*: (1) the risk of fish migration from northern seas to areas with more favourable conditions, and a decrease in the number of fish due to a sharp change in environmental conditions; (2) changes in traditional fishing areas and size of catches; (3) the need to redistribute catch quotas among countries with large fishing fleets; (4) an increase in the frequency of cyclones and strong winds, which will complicate the work of fishing vessels, and an increase the total time of forced interruption to work due to stormy weather thereby reducing the profitability of fishing; (5) eutrophication, introduction of alien species, shifts in the range of populations of indigenous species, changes in fish productivity and loss of habitat for species in the ecosystems of the Baltic Sea; and (6) an increase in the catch of freshwater fish in the Azov and Black Sea basins due to a decrease in salinity.
	Adaptation: No information was reported.
Forests	*Vulnerability*: (1) expansion of the areas of the gypsy moth and spread of the silkworm and nun moths to the north of European Russia, the south of eastern Siberia and the centre of Yakutia; (2) an increase in the number of forest fires and areas affected by them; (3) an increase in the intensity and frequency of weather anomalies (e.g. extreme high and low temperatures of air and soil, droughts, hurricane winds), which could cause massive damage to forests; and (4) a reduction in the time interval between forest fires, which will lead to the degradation of forest landscapes (with the south of the country facing an increased risk).
	Adaptation: (1) development of a detailed assessment of climate change impacts on different forest ecosystems; (2) improved methods and technologies for regional forecasting of climatic conditions; (3) effective elimination of forest fires,[b] diseases and harmful insects; and (4) development and implementation of biological control methods.
Human health	*Vulnerability*: (1) an increase in mortality in urban populations during heatwaves, especially in the over 65 years age group and in people suffering from cardiovascular disease; (2) an increase in the incidence of exposure of the population to high temperatures and elevated levels of air pollution resulting from forest and peat bog fires; (3) the risk of fatalities during floods and other extreme climatic events; (4) an increase in the incidence of acute intestinal infectious and parasitic diseases; (5) an increase in the incidence of various infectious diseases of bacterial and viral nature (e.g. anthrax, leptospirosis, tularemia, haemorrhagic fever with renal syndrome); and (6) an increase in the risk of infection with and morbidity due to vector-borne diseases transmitted by ticks and mosquitoes.
	Adaptation: (1) development of adaptation plans for urban populations that are exposed to heatwaves; (2) adoption of plans to strengthen the epidemiological surveillance of climate-sensitive infectious diseases and the introduction of appropriate prevention measures; (3) development of plans for inter-institutional cooperation on combating the adverse impacts of climate change on human health among meteorological services, health services, social security and other departments at the local, regional and national level; (4) installation of air-conditioning systems in residential and industrial facilities; (5) dissemination of information on climate forecasting and weather conditions; (6) continuous monitoring of contagious and parasitic pests, including their habitats and affected populations; etc.
Infrastructure and economy	*Vulnerability*: (1) the accelerated ageing of buildings, roads and other infrastructure due to temperature and humidity deformation; (2) the destruction of pipelines as a result of the increased risk of landslides and mudflows associated with increased precipitation intensity; (3) flooding and

Vulnerable area	*Examples/comments/adaptation measures reported*
	destruction of the entire coastal infrastructure; (4) an increase in the number of accidents associated with the deformation of railway tracks and lines due to extremely high air temperatures; (5) a reduction in the availability of water for cooling electric power units due to increased summer temperatures and reduced rainfall; (6) a reduction in the generated and transmitted electric power capacity with the possibility of a complete stoppage in the delivery of electric power; (7) an increase in energy consumption, which will contribute to emergency situations in energy supply and water supply; (8) an increase in the number of accidents on power lines due to an increase in extreme weather events; and (9) a reduction in the bearing capacity of permafrost soils, resulting in the strengthening and development of destructive processes (subsidence, thermokarst) leading to failure or partial (sometimes complete) destruction of infrastructure. *Adaptation*: (1) a standard to ensure thermal protection and energy efficiency of buildings, including the efficiency of thermal energy consumption and ventilation over the heating season;[c] (2) installation of vapour–liquid thermosyphons and/or ventilation ducts in embankments of linear structures, which is the main way of adapting them to the predicted changes in the thermal stabilization of permafrost; and (3) strengthening foundations by installing additional piles, as well as heat stabilization using thermosyphons and ventilation.
Water resources	*Vulnerability*: (1) a decrease in annual run-off is expected from the flat rivers in regions that currently have a delicate water–economic balance, this could lead to a reduction in water availability for the population and for economic activity; and (2) an increase in the maximum water discharge in rivers causing floods in regions where river volume is determined by rainfall or prolonged monsoon rains. *Adaptation*: (1) storage of water in reservoirs; (2) diversion of water flow from other river basins; (3) creation of alternative sources of water supply, in particular for agriculture, including irrigation, and energy production; (4) optimization of water use and reduction of water losses during transportation; and (5) introduction of up-to-date technologies in the industrial and energy sectors that minimize water consumption.

[a] The Environmental Safety Strategy of the Russian Federation to 2025 (approved by Presidential Decree No. 176 of 19 April 2017) stipulates the main objectives of State policy in the sphere of environmental safety.

[b] In 2016, work continued on improving the regulatory framework for protecting territories from wildfires, including forest fires.

[c] The building standard on thermal protection of buildings of the Ministry of Regional Development (SNIP 23-02-2003).

108. The Russian Federation provided a detailed description of international adaptation activities. The Russian Federation also provided information on bilateral cooperation with developing countries on adaptation, such as projects on combating the effects of climate change that specifically contain adaptation activities (in, e.g., Armenia, Cuba, Tajikistan and Zimbabwe), with a total investment of more than USD 4 million.

2. Assessment of adherence to the reporting guidelines

109. The ERT assessed the information reported in the NC7 of the Russian Federation and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

F. Research and systematic observation

1. Technical assessment of the reported information

110. The Russian Federation provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contributions to the World Climate Programme, the International Geosphere–Biosphere Programme, GCOS and the IPCC. However, the Russian Federation did not provide information on the identification of opportunities for and barriers to free and open international exchange of data and information and on action taken to overcome such barriers.

111. The Russian Federation has implemented and planned international and domestic policies and programmes on climate change research, systematic observation and climate

modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth's system over space and time.

112. The NC7 reports that the Russian Federation, through Roshydromet, implements a number of federal programmes on climate change research that support research in fundamental and applied science, including Research, Development, Technological and Other Works for Public Needs in the Area of Hydrometeorology and Environmental Monitoring (2014–2016) and its subprogrammes: Environmental Observing System and Development of Technologies for Data Collection, Archiving, Dissemination and Management of Observed Data; Development of Environmental Pollution Monitoring System; Research on Climate, Climate Change and its Impacts; and Assessment of the Hydrometeorological Regime and Climate Resources.

113. The Party reported that the Ministry of Education and Science is very active in the area of climate change research, including its implementation of the federal programme Research and Development on Priority Directions of the Scientific-Technological Complex of the Russian Federation (2014–2020). Since 2014, the Ministry has provided financial support for 73 initiatives in scientific research, engineering and technological development related to climate issues, with a total budget allocation of RUB 3,381.4 million (funds from extrabudgetary sources: RUB 2,173.9 million (39.1 per cent)). These initiatives included "The creation of a scientific and technical reserve in the field of developing technologies for predicting the composition of the atmosphere in a changing climate", "The genesis of the inter-annual variability of the wetting characteristics of the European territory of Russia in the context of current climate change" and "The combined effect of the stratospheric circulation and the thermal state of the ocean on the formation of long-term weather and climate change anomalies and atmospheric composition".

114. The Russian Federation provided information on activities within the framework of NEACC. Seasonal and annual climate monitoring bulletins are issued for the countries of the Commonwealth of Independent States, and bulletins and surveys of droughts countrywide. NEACC is one of the nodes of the regional climate network in the World Meteorological Organization Regional Association VI (Europe) and specializes in long-term forecasts.

115. Within the framework of the Roshydromet international cooperation programmes under VMGO, forecasts are made of future regional climate changes using the high-resolution (25 km) model system of VMGO and impacts in regions adjacent to the territory of the Russian Federation (Central Asia and the Arctic). The Arctic is among the priority regions of the World Climate Research Programme and VMGO carries out regional climate studies for the Arctic in accordance with the Coordinated Regional Climate Downscaling Experiment protocol.[3]

116. During the review, the Russian Federation communicated information about the research project Regional Ecosystem GHG Sources and Sinks in the Russian Federation, which was funded by the Ministry of Natural Resources and Environment and implemented by IGCE and other research institutes in 2017–2018. The results of the project show that net absorption by ecosystems (forest, tundra, steppe, swamp and grassland) will sequester approximately 40 per cent of anthropogenic GHG emissions over the territory of the Russian Federation (approximately half of this amount is due to anthropogenic absorption, accounted for in the national GHG inventory, and the other half is due to absorption by natural ecosystems).

117. In terms of activities related to systematic observation, the Russian Federation reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. The Russian Federation also reported on challenges related to the maintenance of a consistent and comprehensive observation system.

118. According to the NC7, Roshydromet and its subordinate institutes conduct systematic terrestrial, oceanographic and stratospheric observations related to climate change, including observations of the climate system through 1,633 stations of the surface meteorological network, and 114 stations of the upper-air network (GCOS Surface Network: 132 stations in

[3] See http://www.cordex.org.

the Russian Federation and 4 in the Antarctic; GCOS Upper-Air Network: 12+ stations (2 in the Antarctic); Regional Basic Climatological Networks: 117 stations). The focus of terrestrial observations is on permafrost (Circumpolar Active Layer Monitoring Network: 25 stations; Global Terrestrial Network for Permafrost: 6 groups of stations (4 in Siberia)), glaciers, carbon flux (FLUXNET: 10 stations), snow cover (All-Russia Research Institute for Hydrometeorological Information-World Data Center in Qbninsk), wildfires (Federal Agency for Forestry) and CO_2 fluxes (Federal Agency for Forestry).

119. The Russian Federation has an extensive remote sensing observation network. In space, seven satellites collect meteorological and natural resource data. On the surface, centres in Europe, Siberia and the Far East receive and process remote sensing data from Russian and international satellites.

120. During the review, the Russian Federation provided the ERT with additional information on its research and systematic observation programmes. Three reports were featured: on climate risks over the entire territory of the Russian Federation; on a global assessment of risks and ecological and economic consequences of soil degradation; and on adaptive systems and technologies for rational land use. The ERT notes that the Party may consider including this information, to the extent appropriate, in its next NC.

121. The ERT commends the Russian Federation on its efforts made in presenting a summary of information on GCOS activities and a separate report that details these activities, in accordance with the requirements of the UNFCCC reporting guidelines on NCs. The ERT acknowledges that the Russian Federation is among the leading countries in the world in climate research and systematic observation. The Party attaches great importance to research and observation, and the financial support provided to related activities is relatively high.

122. The NC7 reflects actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries within the framework of the activities of NEACC. The results of satellite climate monitoring are regularly updated on the NEACC website.[4]

2. Assessment of adherence to the reporting guidelines

123. The ERT assessed the information reported in the NC7 of the Russian Federation and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 15.

Table 15
Findings on research and systematic observation from the review of the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 62	The Russian Federation did not provide information on the identification of opportunities for and barriers to free and open international exchange of data and information and on action taken to overcome such barriers in its NC7.
	Issue type: completeness	During the review, the Russian Federation explained that it had not identified essential barriers to free and open international exchange of data and information. It noted that increased funding could help facilitate and accelerate data and information exchange.
	Assessment: encouragement	The ERT encourages the Russian Federation to include in its next NC information on opportunities for and barriers to free and open international exchange of data and information and on action taken to overcome such barriers.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

[4] See http://seakc.meteoinfo.ru/ (in Russian).

G. Education, training and public awareness

1. Technical assessment of the reported information

124. In the NC7 the Russian Federation provided information on its actions relating to education, training and public awareness. The Party provided information on primary, secondary and higher education; professional training; public awareness activities conducted by government authorities, corporations and companies, research organizations and the media; and information activities conducted by public organizations. The Russian Federation provided in the NC7 information on the information activities of corporations and companies that was not included in the NC6.

125. The Russian Federation reported that basic information on climate change is provided by the general education system. During primary and secondary education, climate change is taught under geography, biology and "world around us" disciplines as a part of the compulsory curriculum. Students interested in climate change issues can study additional teaching materials in various clubs, training centres and children's organizations. Olympiads (competitions) are organized for secondary school students by universities, municipal administrations and other organizations at the federal and regional level to attract the attention of students to the problem of climate change.

126. Graduate and postgraduate education in hydrometeorology and climatology provide students with knowledge of the climate change process. The universities with the most notable programmes in climatology and hydrometeorology are the Russian State Hydrometeorological University, Lomonosov Moscow State University (Faculty of Geography), Saint Petersburg State University (Institute of Earth Sciences) and the Admiral Makarov State University of Maritime and Inland Shipping.

127. The ERT noted the activities of corporations and companies in the Russian Federation in education, training and public awareness, including ROSATOM, RUSAL, Gazprom, LUKOIL Group and Aeroflot. RUSAL, Gazprom and LUKOIL Group are participating in a carbon disclosure project in which they release information on their GHG emissions. During the review, the Party informed the ERT of the creation by Russian companies of the Climate Partnership of Russia, which aims to consolidate the efforts of Russian businesses to mitigate environmental impacts and help prevent climate change.

128. The year 2017 was declared the Year of Ecology, and throughout the year various activities and public information campaigns were conducted, such as contests, forums, screening of documentary films and scientific expeditions.

129. The Russian Federation uses the websites of ministries and government organizations to increase public awareness of climate change and adaptation (e.g. Ministry of Natural Resources and Environment, Roshydromet, Federal State Statistics Service). The Party reported on its involvement in and coordination of international conferences on environment and climate change topics.

130. Various public organizations in the Russian Federation conduct information activities on climate change, energy and resource efficiency (e.g. World Wildlife Fund Russia, Greenpeace, Climate Action Network–European Caucuses and Central Asia, Russian Regional Environmental Centre, Center for Energy Efficiency).

2. Assessment of adherence to the reporting guidelines

131. The ERT assessed the information reported in the NC7 of the Russian Federation and identified issues relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 16.

Table 16
Findings on education, training and public awareness from the review of the seventh national communication of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 65 Issue type: completeness Assessment: encouragement	The extent of public participation in the preparation or domestic review of the NC was not reported. During the review, the Russian Federation clarified that information on climate change related policy documents is publicly available on the websites of the relevant institutions, but that there is no systematic public consultation process established during the drafting of the relevant strategic or regulatory documents. The ERT encourages the Russian Federation to include in its next NC information on the extent of public participation in the preparation or domestic review of the NC.
2	Reporting requirement specified in paragraph 66 Issue type: transparency Assessment: encouragement	The Russian Federation provided examples of individual initiatives related to training and public awareness in the NC7, but the ERT noted that it was not clear how a general policy on training and public awareness is approached. During the review the Party explained that a coordinated, government-led policy on training and public awareness is envisaged by the climate doctrine and the Complex Plan for Implementation of the Climate Doctrine. The Party also informed the ERT that public information campaigns in the Russian Federation are conducted independently by various authorities and non-governmental organizations. The ERT encourages the Russian Federation to improve the transparency of its reporting by including in its next NC more information on how the implementation of general policy on training and public awareness is approached.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

III. Conclusions and recommendations

132. The ERT conducted a technical review of the information reported in the NC7 of the Russian Federation in accordance with the UNFCCC reporting guidelines on NCs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC7 provides an overview of the national climate policy of the Russian Federation.

133. The information provided in the NC7 includes all elements of the supplementary information under Article 7 of the Kyoto Protocol that are relevant for the Russian Federation, which does not have a target for the second commitment period of the Kyoto Protocol.

134. The Russian Federation's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 29.2 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 48.4 per cent below its 1990 level in 2016. Emission decreases during the period 1990–1998 were due to the economic crisis after the dissolution of the Soviet Union, and the economic reforms put in place and consequent restructure of the economy. After 1998, emissions increased until 2012, driven by an upward economic trend and increasing fuel consumption and industrial production, except for a drop during 2009–2010 due to the worldwide economic recession. Since 2012 emissions have stabilized, with some inter-annual variations driven by unsteady GDP growth.

135. The Russian Federation's main policy framework relating to energy and climate change comprises the various strategies that prescribe the setting and the implementation by various governmental institutions of measures that will lead to the achievement of the target of a GHG emission reduction by 2020 to a level not exceeding 75 per cent of the 1990 level. Owing to the significance of the energy sector in the national economy, the policies with the

most significant effect, as estimated and reported by the Russian Federation, are strategies related to energy development by 2020 and to the coal industry to 2030. The impact of the agriculture and waste sectors on GHG emissions is limited. PaMs in the LULUCF sector aim to increase the sequestration of GHGs. Energy efficiency remains the main focus of GHG emission reduction related measures, while initiatives for promoting RES are slightly increasing. The Russian Federation estimated the economic potential of the energy efficiency measures at 327,457 kt CO_2 eq, which is 12.5 per cent of total GHG emissions in the Russian Federation in 2015.

136. The GHG emission projections provided by the Russian Federation in the NC7 correspond to the WOM, WEM and WAM scenarios. In the three scenarios, emissions are projected to be 17.4, 26.5 and 29.2 per cent below the 1990 level (based on NIR 2018) in 2020, respectively.

137. The reported information indicates that the Russian Federation expects to meet its 2020 target (25 per cent reduction compared with the 1990 level by 2020) under the WEM and WAM scenarios. However, because it is unclear whether the reported WEM and WAM scenarios adhere to the definitions of those scenarios given in the UNFCCC reporting guidelines on NCs, the ERT could not make a final assessment on the likelihood of the Party achieving the target.

138. The Russian Federation is not planning to make use of the Kyoto Protocol mechanisms for the second commitment period of the Kyoto Protocol as it does not have a quantitative economy-wide emission reduction target for 2020.

139. The Russian Federation is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3. 4 and 5, of the Convention. However, the Russian Federation provided information in the NC7 on its provision of support to developing country Parties. The Russian Federation provided financial support to developing countries (mainly to former Soviet Union countries and Pacific SIDS), including through the Russia–UNDP Trust Fund for Development (including its Climate Change Window), and it provided technology development and transfer support in nuclear power.

140. The impacts of climate change in the Russian Federation can be positive or negative, owing to its geographical coverage and vulnerable areas. According to the NC7, buildings and infrastructure in the permafrost zone, the Arctic zone, agriculture, forestry, coastal zones, water resources and human health could be the sectors most affected by the negative impacts of climate change. The comprehensive plan for the implementation of the climate doctrine of the Russian Federation provides the basis for addressing adaptation matters. In addition, a number of strategic documents with adaptation components have been developed for various vulnerable sectors and regions, and these provide further direction to government agencies on enhancing adaptation to climate change. The Russian Federation cooperates with Parties not included in Annex I to the Convention in preparing for adaptation to climate change.

141. The Russian Federation is one of the leading countries in climate research and systematic observation at the international level. According to the NC7, Roshydromet and its subordinate institutes conduct systematic terrestrial, oceanographic and stratospheric observations related to climate change, including observations of the climate system. The focus of terrestrial observations is on permafrost, glaciers, carbon flux, snow cover, wildfires and CO_2 fluxes. The Russian Federation also has an extensive remote sensing observation network with seven satellites that collect meteorological and natural resource data and centres on the surface that receive and process the data. Actions taken to support capacity-building related to research and systematic observation in developing countries include the establishment and maintenance of observation systems and monitoring systems within the framework of NEACC.

142. As an integral part of the mandatory primary and secondary school curriculum, climate change is taught under the subjects geography, biology and “world around us”. Graduate and postgraduate programmes on hydrometeorology and climatology provide students with knowledge of climate change science. Some large companies in the Russian Federation conduct various climate change related educational and public awareness activities. The year 2017 was declared the Year of Ecology and various public information campaigns and activities were conducted by public institutions.

143. In the course of the review, the ERT formulated the following recommendations for the Russian Federation to improve its adherence to the UNFCCC reporting guidelines on NCs and its reporting of supplementary information under the Kyoto Protocol:[5]

(a) To improve the completeness of its reporting by:

(i) Providing, in addition to the text in the tabular format, further textual descriptions of its principal sectoral PaMs (see issue 5 in table 8);

(ii) Reporting emission projections for the WEM scenario, and WAM and WOM scenarios when reported, on a sectoral basis, to the extent possible, using the same sectoral categories used in the PaMs section (see issue 3 in table 11);

(iii) Reporting emission projections for the WEM scenario, and WAM and WOM scenarios when reported, on a gas-by-gas basis (see issue 4 in table 11);

(iv) Providing, to the extent possible, emission projections related to fuel sold to ships and aircraft engaged in international transport, separately and not included in the national total (see issue 6 in table 11);

(v) Providing information on factors and activities affecting the emission projections for each sector (see issue 14 in table 11);

(vi) Reporting the total effect of PaMs by gas (see issue 2 in table 13);

(b) To improve the transparency of its reporting by:

(i) Providing information on drivers of change in GHG emissions and an analysis of how national circumstances have affected GHG emissions over time (see issue 1 in table 4);

(ii) Providing a clear description of administrative procedures established pursuant to the implementation of the Kyoto Protocol, including legislative arrangements and administrative procedures in place to make information publicly accessible (including rules on enforcement and action taken) (see issue 1 in table 6);

(iii) Providing information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention (see issue 9 in table 8);

(iv) Reporting on whether its WEM scenario, and WAM scenario when reported, is defined in accordance with the definition in the UNFCCC reporting guidelines on NCs (see issue 1 in table 11);

(v) Providing the estimated and expected total effects of implemented and adopted PaMs, while using scenario definitions from the UNFCCC reporting guidelines on NCs (see issue 1 in table 13).

IV. Questions of implementation

144. During the review the ERT assessed the NC7, including the supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, and the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol with regard to timeliness, completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

[5] The recommendations are given in full in the relevant sections of this report.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of the Russian Federation. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/submissions/national-inventory-submissions-2017.

2018 GHG inventory submission of the Russian Federation. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018.

BR3 of the Russian Federation. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/submitted-biennial-reports-brs-from-annex-i-parties.

BR3 CTF tables of the Russian Federation. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/submitted-biennial-reports-brs-from-annex-i-parties.

"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.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/1999/7. Available at http://unfccc.int/resource/docs/cop5/07.pdf.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex to decision 15/CMP.1. Available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex III to decision 3/CMP.11. Available at http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf.

"Guidelines for review under Article 8 of the Kyoto Protocol". Annex to decision 22/CMP.1. Available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf.

"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.

NC7 of the Russian Federation. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/submitted-national-communications-from-annex-i-parties.

Report on the individual review of the annual submission of the Russian Federation submitted in 2016. FCCC/ARR/2016/RUS. Available at http://unfccc.int/resource/docs/2017/arr/rus.pdf.

Report on the technical review of the sixth national communication of the Russian Federation. FCCC/IDR.6/RUS. Available at http://unfccc.int/resource/docs/2015/idr/rus06.pdf.

Revisions to the guidelines for review under Article 8 of the Kyoto Protocol. Annex I to decision 4/CMP.11. Available at http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf.

"UNFCCC biennial reporting guidelines for developed country Parties". Annex I to decision 2/CP.17. Available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Alexander Nakhutin (IGCE), including additional material.