Advance Version

COMPLIANCE COMMITTEE

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Report of the technical review of the sixth national communication of the Russian Federation

Note by the secretariat

The report of the technical review of the sixth national communication of the Russian Federation was published on 12 February 2015. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/IDR.6/RUS contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Report of the technical review of the sixth national communication of the Russian Federation

Parties included in Annex I to the Convention are requested, in accordance with decision 9/CP.16, to submit a sixth national communication to the secretariat by 1 January 2014. In accordance with decision 7/CMP.8, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their sixth national communication supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. In accordance with decision 15/CMP.1, these Parties shall start reporting the information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention for the first year of the commitment period. This includes supplementary information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol.

This report presents the results of the technical review of the sixth national communication and 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".

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I. Introduction and summary

A. Introduction

1. For the Russian Federation, the Convention entered into force on 28 March 1995 and the Kyoto Protocol on 16 February 2005. Under the Convention, the Russian Federation made a commitment to reducing its greenhouse gas (GHG) emissions by 2020 to a level not higher than 75.0 per cent of the 1990 level. Under the Kyoto Protocol, the Russian Federation committed itself to keeping its GHG emissions at the base year[1] level during the first commitment period, from 2008 to 2012.

2. This report covers the in-country technical review of the sixth national communication (NC6) of the Russian Federation, 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" (decision 23/CP.19) and the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1).

3. The review took place from 9 to 11 October 2014 in Moscow, Russian Federation, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Gabriela Fischerova (Slovakia), Ms. Diana Harutyunyan (Armenia), Mr. Marius Ţăranu (Republic of Moldova) and Ms. Inga Valuntiene (Lithuania). Ms. Valuntiene and Mr. Ţăranu were the lead reviewers. The review was coordinated by Mr. Javier Hanna (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the NC6. The ERT also reviewed the supplementary information provided by the Russian Federation as a part of the NC6 in accordance with Article 7, paragraph 2, of the Kyoto Protocol. In addition, the ERT reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, which was provided by the Russian Federation in its 2013 annual submission and previous submissions and elaborated further in its 2014 annual submission under Article 7, paragraph 1, of the Kyoto Protocol.

5. In accordance with decisions 23/CP.19 and 22/CMP.1, a draft version of this report was communicated to the Government of the Russian Federation, which made no comment on it.

B. Summary

6. The ERT conducted a technical review of the information reported in the NC6 of the Russian Federation in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications" (hereinafter referred to as the UNFCCC reporting guidelines on NCs). As required by decision 15/CMP.1, supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol[2] is provided in the

[1] "Base year" refers to the base year under the Kyoto Protocol, which is 1990 for carbon dioxide, methane and nitrous oxide, and 1995 for perfluorocarbons, hydrofluorocarbons and sulphur hexafluoride. The base year emissions include emissions from sectors/source categories listed in Annex A to the Kyoto Protocol.

[2] Decision 15/CMP.1, annex, chapter II.

NC6 (see para. 135 below). The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above is mostly complete and mostly transparent.

7. The Russian Federation considered many recommendations provided in the report of the in-depth review of the fifth national communication (NC5) of the Russian Federation.[3] For example, the Russian Federation included in its NC6 all elements of the description of the national system in accordance with Article 5, paragraph 1, of the Kyoto Protocol and the description of the principal PaMs in each sector, supplemented by a summary table on PaMs. The ERT commended the Russian Federation for its improved reporting. During the review, the Russian Federation provided further relevant information on: the disaggregated indicators used to explain the relationship between the national circumstances and emissions in the transport sector (i.e. changes in the numbers of passengers using different transport modes and increased numbers of cars) and in the agriculture sector (i.e. changes in livestock, arable areas and fertilizer application); the expected impacts of corporative (Rosatom, Gazprom, Russian Railways and others) mitigation programmes and action plans that have been considered in the energy strategy of the Russian Federation until 2030; the differences between key assumptions of projections presented in the NC5 and NC6 for the land use, land-use change and forestry (LULUCF) sector; the implemented initiatives on adaptation in cooperation with Parties not included in Annex I to the Convention (non-Annex I Parties); the actions taken to support related capacity-building activities in developing countries and programmes targeted at providing support/assistance for developing countries to maintain observing systems and related data and monitoring systems; how the impact of public awareness campaigns is monitored in the Russian Federation; the changes in the status of reporting on national systems in accordance with Article 5, paragraph 1, of the Kyoto Protocol; how the national registry of the Russian Federation is performing the functions set out in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1; and the minimization of adverse impacts in accordance with Article 2, paragraph 3, of the Kyoto Protocol.

1. Completeness and transparency of reporting

8. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below.

2. Timeliness

9. The NC6 was submitted on 30 December 2013, before the deadline of 1 January 2014 mandated by decision 9/CP.16, and resubmitted on 16 May 2014.

3. Adherence to the reporting guidelines

10. The information reported by the Russian Federation in its NC6 is mostly in adherence to the UNFCCC reporting guidelines on NCs as per decision 4/CP.5 (see table 1).

[3] FCCC/IDR.5/RUS.

Table 1

Assessment of completeness and transparency issues of reported information in the sixth national communication of the Russian Federation[a]

Sections of national communication	*Completeness*	*Transparency*	*Reference to paragraphs*	*Supplementary information under the Kyoto Protocol*	*Completeness*	*Transparency*	*Reference to paragraphs*
Executive summary	Complete	Transparent		National systems	Complete	Transparent	
National circumstances	Complete	Transparent		National registries	Partially complete	Transparent	19
Greenhouse gas inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Mostly complete	Mostly transparent	95
Policies and measures (PaMs)	Complete	Mostly transparent	28, 30	PaMs in accordance with Article 2	Mostly complete	Transparent	73
Projections and total effect of PaMs	Mostly complete	Partially transparent	75, 77, 78, 79, 81, 90, 93	Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Partially transparent	21, 23, 26
Vulnerability assessment, climate change impacts and adaptation measures	Mostly complete	Transparent	102	Information under Article 10[b]	NA	NA	101
Financial resources and transfer of technology [c]	NA	NA		Financial resources[c]	NA	NA	
Research and systematic observation	Mostly complete	Transparent	111	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Mostly complete	Transparent	137
Education, training and public awareness	Complete	Transparent					

Abbreviation: NA = not applicable.

[a] A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the chapter on conclusions and recommendations.

[b] For the purposes of reporting information in this table, this assessment refers to information provided by the Russian Federation 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 for developed country Parties and other developed Parties included in Annex II to the Convention only. Assessment of the information provided by the Russian Federation 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.

[c] Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (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.

II. Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol

A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol

1. Information on relevant national circumstances

11. In its NC6, the Russian Federation has provided a detailed description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of policies and measures (PaMs) is provided in chapter II.B below.

12. During the review, the Russian Federation provided additional information on its national circumstances, elaborating on how the national circumstances are relevant to factors affecting GHG emissions and removals, including indicators that explain the relationship between national circumstances and GHG emission and removal trends (i.e. in the transport sector, changes in the numbers of passengers using different transport modes and increased numbers of cars; in the agriculture sector, changes in livestock, arable areas and fertilizer application).

13. The ERT encourages the Russian Federation to further analyse and report in its next national communication how national circumstances affect GHG emissions and removals and consider including the trends and driver analysis provided to the ERT during the review in the national circumstances section to improve the transparency of its next national communication.

14. The ERT noted that during the period 1990–2012, the Russian Federation's population and gross domestic product (GDP) decreased by 3.2 per cent and increased by 16.4 per cent, respectively, while GHG emissions per GDP and GHG emissions per capita decreased by 41.4 and 29.5 per cent, respectively. Table 2 illustrates the national circumstances of the Russian Federation by providing some indicators relevant to GHG emissions and removals.

Table 2
Indicators relevant to greenhouse gas emissions and removals for the Russian Federation

	1990	*2000*	*2005*	*2010*	*2011*	*2012*	*Change 1990–2012 (%)*	*Change 2011–2012 (%)*
Population (million)	148.29	146.30	143.15	142.39	142.96	143.53	–3.2	0.4
GDP (2005 USD billion using PPP)	1 872.28	1 260.06	1 696.73	2 019.30	2 105.95	2 178.44	16.4	3.4
TPES (Mtoe)	879.19	619.27	651.71	703.55	738.51	756.59	–13.9	2.4
GHG emissions without LULUCF (kt CO_2 eq)	3 363 342.44	2 053 320.98	2 135 398.16	2 221 342.01	2 284 292.82	2 295 045.38	–31.8	0.5
GHG emissions with LULUCF (kt CO_2 eq)	3 527 913.46	1 646 819.11	1 629 229.97	1 654 100.27	1 710 856.11	1 753 028.59	–50.3	2.5

	1990	*2000*	*2005*	*2010*	*2011*	*2012*	*Change 1990–2012 (%)*	*Change 2011–2012 (%)*
GDP per capita (2005 USD thousand using PPP)	12.63	8.61	11.85	14.18	14.73	15.18	20.2	3.0
TPES per capita (toe)	5.93	4.23	4.55	4.94	5.17	5.27	–11.1	2.0
GHG emissions per capita (t CO_2 eq)	22.68	14.03	14.92	15.60	15.98	15.99	–29.5	0.1
GHG emissions per GDP unit (kg CO_2 eq per 2005 USD using PPP)	1.80	1.63	1.26	1.10	1.08	1.05	–41.4	–2.9

Sources: (1) GHG emission data: Russian Federation's 2014 GHG inventory submission, version 2.1; (2) Population, GDP and TPES data: International Energy Agency.

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.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, PPP = purchasing power parity, TPES = total primary energy supply.

2. Information on the greenhouse gas inventory, emissions and trends

15. The Russian Federation has provided a summary of information on GHG emission trends for the period 1990–2011. This information is consistent with the 2013 national GHG inventory submission. Summary tables, including trend tables for emissions in carbon dioxide equivalent (CO_2 eq) (given in the common reporting format tables), are provided in an annex to the NC6. During the review, the ERT took note of the 2014 annual submission. The relevant information therein is reflected in this report.

16. Total GHG emissions[4] excluding emissions and removals from LULUCF decreased by 31.8 per cent between 1990 and 2012, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 50.3 per cent over the same period. Trends of total GHG emissions were mostly underpinned by GHG emission trends in the energy sector. This was mainly attributed to CO_2 emissions, which is the dominant GHG and which decreased by 33.9 per cent during the period 1990–2012. The economic recession period of 1990–1998 was followed by a period of steady increase in economic activities (1998–2007); however, the economic output levels in 2010 and 2011 did not recover after the 2009 economic crisis. Methane (CH_4) emissions decreased by 17.2 per cent, mainly owing to the decreases in production of natural gas and cattle, while emissions of nitrous oxide (N_2O) decreased the most, by 48.1 per cent as a result of reduced energy generation and use of fertilizers in agriculture. An analysis of the drivers of GHG emission trends in each sector is provided in chapter II.B below. Table 3 provides an overview of GHG emissions by sector from 1990 to 2012.

[4] 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.

Table 3
Greenhouse gas emissions by sector in the Russian Federation, 1990–2012

	GHG emissions (kt CO_2 eq)				*Change (%)*		*Share[a] by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2012*	*1990–2012*	*2011–2012*	*1990*	*2012*
1. Energy	2 720 747.98	1 672 952.06	1 826 310.14	1 885 159.62	–30.7	0.2	80.9	82.1
A1. Energy industries	1 176 042.39	863 463.61	891 741.71	917 361.87	–22.0	2.5	35.0	40.0
A2. Manufacturing industries and construction	217 530.29	116 058.97	138 735.28	159 330.32	–26.8	9.2	6.5	6.9
A3. Transport	348 401.59	157 955.87	230 415.30	241 368.29	–30.7	–0.3	10.4	10.5
A4.–A5. Other	546 324.05	194 728.38	162 829.24	156 212.29	–71.4	–13.3	16.2	6.8
B. Fugitive emissions	432 449.66	340 745.24	402 588.61	410 886.85	–5.0	–1.7	12.9	17.9
2. Industrial processes	258 231.29	167 400.19	174 992.09	181 136.33	–29.9	2.0	7.7	7.9
3. Solvent and other product use	561.61	522.89	564.92	573.43	2.1	0.4	0.0	0.0
4. Agriculture	322 679.48	153 618.31	141 340.76	144 222.05	–55.3	0.2	9.6	6.3
5. LULUCF	164 571.01	–406 501.87	–567 241.73	–542 016.78	–429.4	–5.5	NA	NA
6. Waste	61 122.07	58 827.54	78 134.10	83 953.95	37.4	3.4	1.8	3.7
GHG total with LULUCF	**3 527 913.46**	**1 646 819.11**	**1 654 100.27**	**1 753 028.59**	**–50.3**	**2.5**	**NA**	**NA**
GHG total without LULUCF	**3 363 342.44**	**2 053 320.98**	**2 221 342.01**	**2 295 045.38**	**–31.8**	**0.5**	**100.0**	**100.0**

Source: Russian Federation's 2014 GHG inventory submission, version 2.1 (for GHG emission data).

Note: The changes in emissions and the share by sector are calculated using the exact (not rounded) values and may therefore differ from values calculated with the rounded numbers provided in the table.

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] The shares of sectors are calculated relative to GHG emissions without LULUCF; for the LULUCF sector, the negative values indicate the share of GHG emissions that was offset by GHG removals through LULUCF.

3. National system

17. The Russian Federation provided in its NC6 a description of how its national system is performing the general and specific functions defined in the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). The description includes all elements mandated by decision 15/CMP.1. In its NC6, the Russian Federation reported on the changes in the institutional arrangements of the national system, which took place in 2012 owing to the reorganization of some governmental structures in the Russian Federation, namely the Federal Forestry Agency (Rosleskhoz) was transferred to being under the dependency of the Ministry of Natural Resources and Environment. The NC6 also contains a reference to the description of a national system provided in the national inventory report (NIR) of the 2013 annual submission.

4. National registry

18. In its NC6, the Russian Federation has provided information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1.

The NC6 does not include information required in the annex to decision 15/CMP.1 on: (a) the names of the other Parties with which the Russian Federation cooperates by maintaining the national registry in a consolidated system; (b) the list of the information publicly accessible by means of the user interface to the national registry; and (c) the results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry.

19. During the review, the Russian Federation provided additional information and explained to the ERT that the three missing reporting elements mentioned in paragraph 18 above have been provided in the NIRs of the 2013 and 2014 annual submissions. The ERT took note of this explanation and recommends that the Russian Federation provide in its next national communication information on the national registry fully in accordance with the annex to decision 15/CMP.1.

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

20. The Russian Federation has reported in its NC6 information on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol.

21. The ERT noted that the Russian Federation provided in its NC6 information on policy framework in a partially transparent manner, without clearly stating the objectives, timelines, milestones, division of responsibilities and indicators for PaMs and their arrangements, procedures and programmes related to the Kyoto Protocol. During the review, the Russian Federation provided additional explanations elaborating on most of the issues on: the division of responsibilities; the coordination among various state administration bodies; the establishment, role and work of the working group (see para. 22 below); and the mechanism on how to report and follow progress in implementation of different policies related to the Kyoto Protocol. The NC6 also does not include a description of the legal and administrative framework for climate change, in particular the framework related to the Kyoto Protocol that was in place at the time of preparation of the NC6 (governance structure, division of responsibilities, links between individual institutions, coordination mechanism and other arrangements and procedures). The ERT recommends that the Russian Federation include in its next national communication information on its legal and administrative framework, including governance structure, division of responsibilities, coordination mechanism, clear objectives, timelines and indicators for PaMs and their arrangements, procedures and programmes related to the Kyoto Protocol.

22. The ERT also noted that it was not clear from the information provided in the NC6 which institution has overall responsibility for climate change policymaking and that related to the Kyoto Protocol. During the review, the ERT learned that the Office of the President is the institution responsible for setting the general climate change policy and monitoring its implementation. The Working Group on Climate Change and Sustainable Development,[5] established in 2012, is the main coordinating body of the climate change policy in the Russian Federation. During the review, the Russian Federation provided additional information on the composition, frequency of meetings, working arrangements and the method for adopting decisions of this working group. According to the information provided during the review, there are many ad hoc interministerial groups not formally established through a decree or any other legislative instrument. These groups work for specific purposes or specific PaMs. No detailed information on the number and structure of these informal groups was provided.

[5] <http://state.kremlin.ru/administration/group>.

23. The implementation of climate change policy, including that related to the Kyoto Protocol is carried out through federal legislative arrangements under the responsibility of various ministries and institutions: the Ministry of Economic Development, the Ministry of Energy, the Ministry of Natural Resources and Environment, the Ministry of Regional Development, the Ministry of Industry and Trade, the Ministry of Transport, Rosleskhoz and the Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet). A number of other national institutions are involved in the implementation of this policy. During the review, the Russian Federation provided additional information, elaborating on the objectives and division of responsibility for some of the framework climate change policies and interministerial decision-making processes. The ERT recommends that the Russian Federation include clear information on the institution with overall responsibility for climate change policymaking, including that related to the Kyoto Protocol and information on interministerial and inter-institutional decision-making processes in its next national communication.

24. Implementation of the Kyoto Protocol is underpinned by the key framework climate policy: the climate doctrine of the Russian Federation (CDRF), adopted through decree no. 861 of 17 December 2009. This overarching framework climate policy sets objectives in three priority areas: adaptation, mitigation and participation in international flexible mechanisms. In the energy sector, the Kyoto Protocol is implemented through the 'Russian energy strategy 2030', the government programme 'energy saving and energy efficiency for the period up to 2020' and the programme 'energy efficiency and energy sector development'. Participation in the joint implementation (JI) mechanism is regulated through government resolution no. 332 of 28 May 2007 'on the order of approval and verification of the implementation of projects in accordance with Article 6 of the Kyoto Protocol to the UNFCCC', government resolution no. 780 of 15 September 2011 'on measures to implement the Article 6 of the Kyoto Protocol', as amended, and decree no. 215 of 20 February 2006 'on the establishment of the Russian registry of carbon units in order to implement the obligations arising from the Kyoto Protocol'. All information is publicly accessible and published on the websites of the relevant stakeholders, although the information is not concentrated at one site and requires visiting several websites to obtain a complete picture. The ERT encourages the Russian Federation to concentrate all relevant information in one place and, if possible, to provide it in both Russian and English languages.

25. Policies to promote energy efficiency and renewable energy sources (RES) are the key policies in the overall climate policy framework, including the Kyoto Protocol, because of their large mitigation potential and their potential to deliver multiple co-benefits to the economy and society, such as a reduction in air pollution or a decrease in the energy consumption and related energy bills of households, public buildings and industry.

26. The Russian Federation did not provide a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. The ERT recommends that the Russian Federation provide in its next national communication this missing information for the sake of completeness.

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

27. The Russian Federation has provided in its NC6 information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention

and its Kyoto Protocol. The reported information in textual form is inclusive and covers framework documents, cross-sectoral PaMs and individual PaMs for the following sectors: energy, construction, transport, industry, agriculture, forestry and waste management.

1. Policies and measures related to implementation of commitments under the Convention

28. In its NC6, the Russian Federation reported on its PaMs adopted, implemented and planned in achieving its commitments under the Convention. The Russian Federation provided information on PaMs by sector and a description of the principal PaMs. The information on how the Russian Federation believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals in accordance with the objective of the Convention is presented implicitly in the NC6 through a description of the PaMs, evaluation of the impacts of PaMs and projections. Explicit information on how PaMs modify longer-term GHG emission and removal trends was not provided as required by the UNFCCC reporting guidelines on NCs; therefore, the ERT recommends that the Russian Federation include the explicit information in its next national communication.

29. The ERT noted that the Russian Federation has taken into consideration many of the recommendations to improve reporting on PaMs from the in-depth review report of the NC5, in particular, the recommendation to include a description of the principal PaMs in each sector, supplemented by a summary table on PaMs. The NC6 also contains a more inclusive set of PaMs than that included in the NC5. The Russian Federation reported not only PaMs on climate change, but also on other sustainable development strategies and economic programmes affecting GHG emissions. However, the ERT noted that the NC6 does not include information required by the UNFCCC reporting guidelines on NCs on quantitative estimates of the mitigation impacts of individual PaMs or groups of PaMs (estimated changes of activity levels and a brief description of estimation methods) and that this information is provided only for a few specific measures for different years and in different formats. The ERT also noted that information on methodologies used for estimation of the effects of PaMs and underlying data were not reported. The ERT encourages the Russian Federation to include this information on PaMs in its next national communication, fully in accordance with the UNFCCC reporting guidelines on NCs.

30. The ERT noted that the reported information on PaMs is organized by sector and is also provided in tabular format, including information on names, objectives, GHG affected, type of instrument, status of implementation and implementing agencies. However, the information on PaMs is not subdivided by gas, and the reported tables only provide a list of gases covered by individual PaMs. The ERT recommends that the Russian Federation include the relevant information in its next national communication.

31. In its NC6, the Russian Federation gave priority to those PaMs adopted, implemented and planned that provide the most significant contributions to its emission reduction efforts, including those PaMs where emission reduction is not the primary goal. The NC6 provides information on PaMs at the national level. Limited information was provided on policies implemented at the regional and local levels. During the review, the Russian Federation explained that the distribution of competencies across different administrative levels (national, regional and local) poses challenges with regard to monitoring and assessment of the effects of PaMs. The Russian Federation has provided in its NC6, as required by the UNFCCC reporting guidelines on NCs, information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol. However, the NC6 does not include information on the costs of implementation of PaMs, and on alterations or changes, or effects achieved of PaMs that were described in and put in place since the NC5 or previous NCs, PaMs that are no longer in place compared to those reported in NC6 and an

explanation of why these PaMs were discontinued. The ERT encourages the Russian Federation to include in its next national communication a table with estimates of the costs of implemented measures and other available information on alteration or changes, or effects of PaMs already in place described in the NC5 and the NC6.

2. Policy framework and cross-sectoral measures

32. The Russian Federation reported in its NC6 that there are three levels of climate change policies: strategic level that is reflected in the relevant documents and legal/normative acts; national programmes aimed at limitation of anthropogenic GHG emissions; and national programmes where GHG mitigation is not the primary objective but nevertheless contribute to climate change mitigation.

33. The key framework climate policy is the CDRF adopted through decree no. 861 of 17 December 2009. This overarching climate policy sets objectives "to strengthen and develop the information and scientific basis of the climate policy, including building-up research, engineering and technological capacity of the Russian Federation to provide the most comprehensive and accurate information on the state of climate system, effects on climate, its current and future changes and their consequences" in mitigation, adaptation and participation in international initiatives. The CDRF provides the legal basis for the current climate change policy of the Russian Federation, and contributes to raising awareness on climate change at the highest political level.

34. The comprehensive action plan (CAP) on implementing the CDRF by 2020 was prepared and approved through government resolution no. 730 of 25 April 2011 in order to fulfil the objectives of the CDRF. The Ministry of Economic Development, the Ministry of Natural Resources and Environment, the Ministry of Territorial Development, the Ministry of Health and Social Development, the Ministry of Agriculture, the Ministry of Energy, the Ministry of Industry and Trade, the Ministry of Transport, the Federal Service of Forestry, the Roshydromet and the state corporation Rosatom are the responsible agencies for implementation of the CAP.

35. To implement the CDRF and to promote actions aimed at reducing GHG emissions at the national level, the President of the Russian Federation has adopted decree no. 752 of 30 September 2013 'on reducing the greenhouse gas emissions', which established a target of reducing GHG emissions by 2020 to a level not exceeding 75.0 per cent of the 1990 emission level.

36. The NC6 does not provide explicit information on which PaMs are most effective, innovative or replicable, nor does it identify the effects of PaMs and success factors. A description of how the Russian Federation is monitoring and evaluating the progress of its key framework climate policy was not transparently reported in its NC6. During the review, the Russian Federation provided additional information, elaborating on the climate policy monitoring and evaluation processes that take place every year through the regular reports of responsible ministries to the government and the Office of the President. The reporting obligation is included in the legislation concerning the implementation of the CDRF, for example, governmental order no. 1214 of 2 July 2014 on implementation of the programme of environmental protection. The reports are publicly available.[6] The ERT encourages the Russian Federation to provide all this information in its next national communication.

37. To achieve the proposed target, an action plan was proposed and approved through government resolution no. 504 of 2 April 2014. The action plan set 17 specific PaMs to be prepared and adopted by various governmental institutions. The Russian Federation did not

[6] <http://www.mnr.gov.ru/regulatory/detail.php?ID=134236> and <http://www.mnr.gov.ru/upload/iblock/780/lesarf2011.pdf>.

provide, however, information on inter-linkages of different policies and programmes set out in the action plan, their allocated budgets and their estimated effects. The progress on fulfilling the action plan by responsible governmental institutions is to be reported every three months to the Ministry of Economic Development of the Russian Federation. The Russian Federation is encouraged to provide this information in its next national communication.

38. Other framework policy documents with impacts on emissions are the 'concept of long-term socio-economic development of the Russian Federation for the period up to 2020';[7] the energy strategy of Russia to 2030, the basis of the state policy in the field of environmental development of the Russian Federation for the period until 2030;[8] the state programme of the Russian Federation on environmental protection for 2012–2020;[9] the government programme on developing the forestry sector for 2013–2020; and other sectoral policies and corporate programmes, such as the programme of energy conservation and energy efficiency of Gazprom for the period 2011–2013 and the concept of energy-saving Gazprom for 2011–2020.

39. During the review, the Russian Federation informed the ERT on its target to reduce the energy intensity of the GDP by 12.0 per cent by 2020 compared to the 2007 level, mostly through implementation of PaMs on energy efficiency and energy saving. Policies to promote energy efficiency and energy savings are among the keys in the overall climate policy framework because of their multiple co-benefits, such as reductions in air pollution and decreases in energy consumption.

40. The NC6 provides most information on PaMs at the national level, while limited information is provided on policies implemented at the regional and local levels. Information on distribution of competencies across different administrative levels and the method for monitoring the effects on the regional and local levels were not reported. The ERT encourages the Russian Federation to provide more structured descriptions of the legal and administrative framework for climate change and PaM management at the national, regional and local levels, including roles of national, regional and local government and the involvement of any other entities in the implementation of national, regional and local PaMs and information on the respective institutional arrangements for monitoring of GHG mitigation policy in its next national communication. Table 4 provides a summary of the reported information on the PaMs of the Russian Federation.

Table 4
Summary of information on policies and measures reported by the Russian Federation

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Policy framework and cross-sectoral measures		
	'Concept of long-term socio-economic development of the Russian Federation for the period up to 2020' (government resolution no. 1662 of 17 November 2008)	NR
	CDRF (decree no. 861 of 17 December 2009)	NR
	CAP on implementing CDRF by 2020 (government resolution no. 730 of 25 April 2011)	NR
	Basis of the state policy in the field of environmental	NR

[7] <http://economy.gov.ru/minec/activity/sections/fcp/rasp_2008_N1662_red_08.08.2009>.
[8] <http://base.garant.ru/70169264/#text>.
[9] <http://www.sbras.ru/win/anons/1689/13/gosprogramma-2012_2020.pdf>.

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
	development of the Russian Federation for the period until 2030 approved on 30 April 2012	
	Action plan on implementing the state policy in the field of environmental development of the Russian Federation for the period until 2030 (government resolution no. 2423 of 18 December 2012)	NR
	State programme of the Russian Federation on environmental protection for 2012–2020 (government resolution no. 2552 of 27 December 2012)	NR
	Decree no.752 of 30 September 2013, 'on reducing the greenhouse gas emissions by 2020 to a level not exceeding 75 per cent of the 1990 emission level'	NR
	Action plan on achieving the target of reduction of greenhouse gas emissions by 2020 to a level not exceeding 75 per cent of the 1990 emission level (government resolution no. 504 of 2 April 2014)	NR
Energy		
Energy supply	'Russian energy strategy 2030' (government resolution no. 1715 of 13 November 2009)	NR
	Government programme 'energy saving and energy efficiency for the period up to 2020' (government resolution no. 2446 of 27 December 2010)	2 436 000 (cumulative for 2011–2020)
	Draft government programme 'modernization of the Russian power industry until 2020' (2011)	NR
	Government programme 'energy efficiency and energy sector development' (government resolution no. 512 of 3 April 2013)	393 000 (by 2020)
Renewable energy	Transport strategy of the Russian Federation for the period up to 2030 (government resolution no. 1734 of 22 November 2008) (35 per cent of RES use in road transportation up to 2030)	NR
	Government resolution no. 1 of 8 April 2010 approving the main directions of state policy in the area of RES and establishing the share of RES in electricity production for 2010 (1.5 per cent), 2015 (2.5 per cent) and 2020 (4.5 per cent)	NR
	Government resolution no. 1839 of 4 October 2012 approving a package of measures to stimulate the production of electricity from RES	NR
	Government resolution no. 449 of 28 May 2013 defining a mechanism to stimulate the use of renewable energy in the wholesale electricity market	NR
Energy efficiency	Decree no. 889 of 4 June 2008 'on certain measures to increase energy and ecological efficiency of the Russian Economy'	NR
	Federal law no. 261-FZ of 23 November 2009 on energy saving and energy efficiency in the Russian Federation	NR
	Government programme 'energy saving and energy efficiency for the period up to 2020' (government resolution no. 2446 of 27 December 2010)	NR NR

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
	Government programme ‘energy efficiency and energy development’ (government resolution no. 512 of 3 April 2013)	2 500 (per year until 2020)
	Programme of innovative development until 2020 of the JSC ‘Federal Grid Company of the Unified Energy System’ (2011)	11 191.40 (by 2013)
	Programme ‘energy saving and energy efficiency’ of JSC Gazprom for 2011–2013	
Residential and commercial sectors	Government resolution no. 1225 of 31 December 2009 ‘on requirements to regional and municipal programs on energy savings and energy efficiency’	NR
Transport	Transport strategy of the Russian Federation for the period up to 2030 (government resolution no. 1734 of 22 November 2008) (reduction of 60 per cent of air pollutants from transport compared to 2007 level)	NR
	Railway transport development strategy of the Russian Federation until 2030 (government resolution no. 877 of 17 June 2008) (reduction of emission by 30–50 per cent in 2030 compared to 2007 level)	NR
	Government programme ‘development of transport system of the Russian Federation (2010–2015 years)’ (government resolution no. 848 of 5 December 2001)	NR
	Programme ‘energy saving and energy efficiency’ of JSC ‘Russian Railways’ for 2013–2015	2 600 (by 2015)
Industrial sectors	Long-term programme on development of the coal industry (government resolution no. 14 of 24 January 2012) (energy intensity reduction of the sector in 2030 by 40 per cent compared to 2010 level)	NR
	Strategy on developing the building materials industry and construction sector in the period up to 2020 (order no. 262 of the Ministry of Regional Development from 30 May 2011)	NR
	Strategy on developing the car building industry of the Russian Federation for the period up to 2020 (order no. 319 of the Ministry of Industry and Trade from 23 April 2010)	NR
	Strategy on development of the metallurgical industry of the Russian Federation up to 2020 (order no. 150 of the Ministry of Industry and Trade from 18 March 2009)	NR
	UNIDO projects	25 600 (by 2015) 8 850 (by 2015)
	‘Secure future strategy’ of RUSAL Company (2007)	
Agriculture	Government programme on development of agriculture and agricultural production markets for 2008–2012 (government resolution no. 446 of 14 July 2007)	NR
	Government programme on development of agriculture and agricultural production markets for 2013–2020 (government resolution no. 717 of 14 July 2012)	NR
Forestry	Government programme on developing forestry sector for 2013–2020 (government resolution no. 2593 of 28 December 2012)	NR

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Waste management	Basis of the state policy in the field of environmental development of the Russian Federation for the period until 2030 approved on 30 April 2012	NR
	Action plan on implementing the state policy in the field of environmental development of the Russian Federation for the period until 2030 (government resolution no. 2423 of 18 December 2012)	NR
	State programme of the Russian Federation on environmental protection for 2012–2020 (government resolution no. 2552 of 27 December 2012)	NR
	Comprehensive strategy for municipal solid waste management in the Russian Federation (order no. 298 of the Ministry of Natural Resources and Environment from 14 August 2013)	NR
	Regulation on accounting in the area of waste management (order no. 721 of the Ministry of Natural Resources and Environment from 1 September 2011)	NR

Source: Russian Federation's sixth national communication and first biennial report.

Abbreviations: CAP = comprehensive action plan, CDRF = climate doctrine of the Russian Federation, JSC = Joint Stock Company, NR = not reported, RES = renewable energy sources, UNIDO = United Nations Industrial Development Organization.

3. Policies and measures in the energy sector

41. Between 1990 and 2012, GHG emissions from the energy sector decreased by 30.7 per cent (835,588.37 kt CO_2 eq), mainly owing to a decrease in fuel combustion. According to information provided to the ERT during the review, the decrease in fuel consumption is mainly due to increased energy efficiency and closure of some of the most inefficient installations. The trend in GHG emissions from fuel combustion showed notable decreases in all categories, particularly in the transport sector (30.7 per cent or 107,033.30 kt CO_2 eq) and energy use in other sectors (71.4 per cent or 390,111.76 kt CO_2 eq). Fugitive emissions showed the lowest decrease (5.0 per cent or 21,562.82 kt CO_2 eq).

42. ***Energy supply***. Emissions from public electricity and heat production decreased by 18.1 per cent in 2012 compared to 1990. In the territory of the Russian Federation, there are 34 per cent of the world's stocks of natural gas, approximately 12 per cent of oil, 20 per cent of hard coal and 32 per cent of brown coal. The production of primary energy resources increased by 4.2 per cent in 2012 compared to 2007, with the highest share for gas (41.7 per cent), followed by oil (39.5 per cent) and coal (12.1 per cent). The amount of electricity produced in 2011 from all power stations increased by 3.9 per cent compared to 2007. In 2011, combined cycle power stations produced 67.7 per cent of all electricity in the country, and the shares of hydropower stations and nuclear power stations were 15.9 per cent and 16.4 per cent, respectively. In 1990, the shares were as follows: 74 per cent from thermal power stations, 15.4 per cent from hydropower stations and 10.9 per cent from nuclear power stations.[10]

43. The main policy documents for activities in the energy supply sector are the 'Russian energy strategy 2030' (government resolution no. 1715 of 13 November 2009), the government programme 'energy saving and energy efficiency for the period up to 2020'

[10] *Third National Communication of the Russian Federation*, available at <http://unfccc.int/resource/docs/natc/rusnce3.pdf>.

(government resolution no. 2446 of 27 December 2010), the draft government programme 'modernization of the Russian power industry until 2020' (2011) and the government programme 'energy efficiency and energy sector development' (government resolution no. 512 of 3 April 2013).

44. The 'Russian energy strategy 2030' focuses on increasing the energy efficiency of energy production, development of the energy infrastructure, flexibility and diversity in the energy markets, and increased efficiency in primary energy production. The strategy estimates GHG emissions to reach a maximum of 83.0 per cent in 2013–2015, a maximum of 90.0 per cent in 2020–2022 and a maximum of 105.0 per cent in 2030 with respect to the 2005 level.

45. The strategy plans to change the energy supply mix, between 2005 and 2030, with a view to decreasing the share of natural gas from 52.0 per cent to 45.0–47.0 per cent, increasing the share of coal from 18.0 per cent to 19.0 per cent, increasing the share of oil and oil condensate from 19.0 per cent to 22.0 per cent and increasing the share of other sources, such as RES and nuclear energy, from 11.0 per cent to 12.0–14.0 per cent. The energy intensity of GDP is envisaged to improve by 44.0 per cent in 2030 compared to 2007 (energy intensity in 2007 was 0.384 ktoe/USD million). The new energy strategy until 2035[11] is prepared and currently waiting for governmental approval. The draft energy strategy until 2035 is based on assessment of the implementation of the energy strategy of 2030. It updates some forecasts towards slower growth (e.g. consumption of primary energy and electricity consumption), sets more detailed objectives and more precise targets, and introduces some new activities (e.g. increase of accessibility to energy services and development of internal energy infrastructure). The new energy strategy until 2035 assumes stabilization of the gas share on the primary energy supply; while according to the energy strategy 2030, the gas share should decrease. Consequently, coal share is lower on the new energy strategy until 2035 than in the energy strategy 2030.

46. The Government of the Russian Federation has set a list of target indicators to monitor energy savings and energy efficiency (government resolution no. 1225 of 31 December 2009 'on requirements to regional and municipal programs on energy savings and energy efficiency'). The list contains 97 indicators for nine groups of PaMs, none of which directly requires reporting on emissions in general, or emissions of GHGs in particular (emission of air pollutants or GHG emissions). The list does not set any values, and only types of indicator (e.g. electricity savings in volume and value terms or specific heat consumption by public institutions) are provided, for which calculations are carried out with the use of metering devices (per square metre of floor area).

47. ***Renewable energy sources***. The 'concept of long-term socio-economic development of the Russian Federation for the period up to 2020' (2008) sets as one of its objectives the development and increased use of RES. In January 2009, the Government of the Russian Federation adopted a 4.5 per cent target of electricity consumption and production from RES to be achieved by 2020 (decree no. 1-r as of January 8, 2009 'on main directions of the governmental policy on increasing energy efficiency in electricity sector based on renewable energy sources for the period until 2020'). In addition, the 'transport strategy of the Russian Federation for the period up to 2030' (approved by government resolution no. 1734 of 22 November 2008) sets a target of 35.0 per cent of RES use in road transportation by 2030. Government resolution no. 1839-r of 4 October 2012 'on approval of the set of measures aimed at stimulating generation of energy from renewable sources' approved a package of measures to stimulate the production of electricity from RES, while government resolution no. 449 of 28 May 2013 'on the mechanism for the promotion of renewable energy on the wholesale electricity and capacity market' defined a mechanism to stimulate

[11] <http://minenergo.gov.ru/documents/razrabotka/17481.html>.

the use of renewable energy in the wholesale electricity market. The government programme 'energy efficiency and energy sector development' (government resolution no. 512 of 3 April 2013) contains a subprogramme on 'development of the use of renewable energy sources' with Russian roubles (RUB) 1.8 billion allocated from the federal budget to support the subprogramme. The ERT noted that the NC6 does not provide any estimated emission reductions as a result of the implementation of the above-mentioned policies.

48. During the review, the ERT was informed that the Russian Federation has a large hydropower and biomass potential for use in energy production. Currently, there are various biomass and small hydropower projects under implementation to provide 1,081 MW of energy by 2018, with a total investment of RUB 111 billion. In addition, 65 solar energy power stations had obtained construction permissions up to September 2014. The Federal Network Company of the Russian Federation under the corporate programme of innovative development until 2016 with the outlook for 2020 has set a target to produce 3.5 GW of energy from RES in 2020.

49. The ERT found the information on PaMs in RES in the NC6 not very well structured, not including supporting indicators such as the share of different RES in the total target and estimations of the emission reductions of each PaM. The target indicators are provided only for a fraction of the projects, and are expressed in different ways and formats (per cent, MW, GW, etc.). The ERT encourages the Russian Federation to improve the transparency and completeness of the information of PaMs on RES in its next national communication, for example presenting target indicators for the various PaMs using the same units and formats, as appropriate.

50. ***Energy efficiency***. Federal law no. 261-FZ of 23 November 2009 'on energy saving and energy efficiency' outlines the government's activities in promoting energy efficiency in the country. Government programme no. 2446 of 27 December 2010 'energy savings and energy efficiency for the period up to 2020' and government programme no. 512 of 3 April 2013 'energy efficiency and energy sector development', which replaced the previous one, facilitate the implementation of federal law no. 261-FZ by providing support for specific energy saving measures.

51. Government programme no. 512 consists of seven subprogrammes, including modernization of the electricity, oil and gas production sectors, restructuring and development of the coal industry, and development of RES. The targets of the programme include to decrease the energy intensity of GDP in 2020 by 13.5 per cent compared to the 2007 level (energy intensity in 2007 was 0.384 ktoe/USD million) and to decrease GHG emissions by 393,000 kt CO_2 eq by 2020. The ERT noted that the NC6 does not elaborate on what group of source categories the target values are related to.

52. The government programme 'on energy savings and energy efficiency for the period up to 2020' sets various measures such as finance support to information campaigns on saving behaviour models for the public, free hotline on energy conservation and efficiency and public multifunctional information resources for energy saving, aimed to deliver the reduction of 673,500 kt CO_2 eq between 2011 and 2015, and during the total period of implementation (2011–2020), the expected reduction is 2,436,000 kt CO_2 eq. The total expected cost from the governmental budget is RUB 7 billion (approximately EUR 140 million, using a conversion rate of 50 RUB = 1 EUR). Within the government programme, 14 pilot projects were implemented, and a 'good practice guidance' with recommendations on possible reduction measures, such as replacement of technologies and equipment in the production, transport and distribution of energy and development of new efficient technologies in all areas of the power generation industry, which would allow 25–40 per cent savings of thermal energy and 15–40 per cent savings of electricity, was developed for the period 2007–2020.

53. ***Residential and commercial sectors***. Emissions from the commercial sector (including the institutional sector) experienced a major decrease in 2012 compared with the 1990 level (97.0 per cent). Emissions from the residential sector had a decrease of 14.6 per cent. In 2010, there were 73,000 district heating stations providing energy to residential and commercial users, with 27,600 of them using solid fuel, 3,100 using liquid fuel, 40,700 using gas fuel and 1,600 using RES. The heat distribution network was 171,100 km long, which provided a challenge for managing losses in transportation of heat. The ERT noted that the NC6 does not elaborate specifically on PaMs in the residential and commercial sectors. During the review, the ERT was informed that a specific governmental programme for these sectors has not been developed, and they are mostly covered on the supply side through energy supply and energy efficiency programmes. The International Finance Corporation's *Russia Residential Energy Efficiency Program*[12] was reported as an example of PaMs in the residential sector. The ERT encourages the Russian Federation to provide more specific information on the residential and commercial sector PaMs in its next national communication.

54. ***Transport sector***. Emissions from the transport sector decreased by 30.7 per cent in 2012 compared to 1990, mostly in railways (by 72 per cent), civil aviation (by 51 per cent) and navigation (by 83 per cent). In absolute terms, the highest reduction occurred in pipeline transport (decreased by 108,702 kt CO_2 eq) and in road transport (decreased by 25,557 kt CO_2 eq). In 2012, the emissions from transport represented 10.5 per cent of the total GHG emissions of the country, with road transportation being a major source of emissions, contributing 63.3 per cent to the total transport emissions.

55. The transport strategy of the Russian Federation for the period up to 2030 (government resolution no. 1734 of 22 November 2008) is the overarching policy document for the transport sector. It includes several objectives, such as reduction of 60.0 per cent of air pollutants from road transport by 2030 compared to 2007, promotion of the use of environmentally friendly fuels, reduction of energy consumption in transport to the level of advanced countries, training of personnel in the transport industry and optimization of the transport infrastructure in the country. Other key PaMs in the transport sector are the railway transport development strategy of the Russian Federation until 2030 (government resolution no. 877 of 17 June 2008), with a target of emission reduction by 30–50 per cent in 2030 compared to 2007, and the government programme 'development of transport system of the Russian Federation (2010–2015 years)' (government resolution no. 848 of 5 December 2001). Objectives of this programme include the development of a modern, efficient and competitive transport infrastructure, improvement of the sustainability of the transport system and implementation of the transit potential of the country. The programme provides for modernization of existing routes and construction of new routes (roads, railways and high-speed public transport); development of a network of airports and increasing the capacity of the seaports; renewal of the vehicle fleet; and development of an integrated control system of transport security.

56. The ERT noted that the information in the NC6 on PaMs in the transport sector contains limited estimates on GHG emission reduction or costs incurred in implementing these PaMs, and encourages the Russian Federation to include this information in its next national communication.

4. Policies and measures in other sectors

57. Between 1990 and 2012, GHG emissions from industrial processes (including solvent and other product use) and agriculture decreased by 29.9 per cent and 55.3 per cent

[12] <http://ifcextapps.ifc.org/ifcext/spiwebsite1.nsf/78e3b305216fcdba85257a8b0075079d/f04a726ea93fa90b85257801007593d9?opendocument>.

(77,083.15 and 178,457.44 kt CO_2 eq), respectively mainly owing to to strong decline of the economy of the country as a result of conversion from a planned economy to a market economy; and GHG emissions from waste increased by 37.4 per cent (22,831.88 kt CO_2 eq), mainly owing to an increase in the consumption of food and products per capita and packaging and subsequent landfilling.

58. ***Industrial processes***. Between 1990 and 2012, GHG emissions from the industrial processes sector decreased by 29.9 per cent (77,094.96 kt CO_2 eq), mainly owing to the decline in economic activity after 1990 and the restructuring of the economy. In particular, significant reductions occurred in iron and steel production (22.7 per cent) and in mineral product processing activities (41.3 per cent).

59. In its NC6, the Russian Federation has reported on adopted programmes by industrial activity and by gas, for example: the 'strategy on development the metallurgical industry of the Russian Federation up to 2020' (order no. 150 of the Ministry of Industry and Trade from 18 March 2009), which sets a target of reducing the energy intensity of steel and iron production technologies; the 'long-term program on development of the coal industry' (government resolution no. 14 of 24 January 2012), which sets a target of energy intensity reduction of this industry by 40.0 per cent in 2030 compared to the 2010 level; the 'strategy on developing the car building industry of the Russian Federation for the period up to 2020' (order no. 319 of the Ministry of Industry and Trade from 23 April 2010), which envisages improvement of standards; and the 'strategy on developing the building materials industry and construction sector in the period up to 2020' (order no. 262 of the Ministry of Regional Development from 30 May 2011), which prioritizes the production of energy-efficient construction materials and utilization of modern technologies in the construction sector. The information is provided also in tabular format and includes GHGs affected by PaMs, as required by the UNFCCC reporting guidelines on NCs. However, no quantitative estimates of the impacts of the measures on GHG emissions were provided. The ERT encourages the Russian Federation to provide these estimates in its next national communication.

60. In its NC6, the Russian Federation also provided information on specific corporate PaMs implemented by some major companies in the industrial sector, for example: Novolipetsk metallurgical factory OSC on utilization of blast furnace gas for energy production; EvrazHolding Ltd on increased efficiency of coal use through introducing pulverized coal injection technology; RUSAL United Company on actions in the framework of its voluntary goal to reduce GHG emissions from aluminium production by 50.0 per cent by 2015 in comparison with 1990 levels, which has already achieved a 43 per cent reduction in 2012, including through implementation of five JI projects; and SUEK OJSC on implementation of a JI project since 2012 on CH_4 capture and utilization in Kuzbas coal mines.

61. The NC6 also provided information on decisions and instructions prescribing regional administrations to increase the share of cement produced by improved energy-efficient technologies up to 65.0 per cent by 2020 compared to 2007, as part of the strategy on developing the construction industry adopted through resolution no. 262, from 30 May 2011 of the Ministry of Territorial Development. In addition, several major timber processing enterprises are implementing projects on improving energy efficiency of their operations and on introducing combined heat and power production from timber industry waste impact under the activities implemented in the framework of Article 6 of the Kyoto Protocol. The ERT encourages the Russian Federation to provide more quantitative information on individual/corporate initiatives in its next national communication.

62. In relation to PaMs targeting fluorinated gases (F-gases), the Russian Federation, during the review, provided information on an ongoing Global Environment Facility/United Nations Industrial Development Organization project, specifically focused on phasing out

hydrofluorocarbons (HFCs), which potentially entails a reduction of GHG emissions by 15,600 kt CO_2 eq by 2015, while additional reduction of GHG emissions by 10,000 kt CO_2 eq may be obtained through energy efficiency measures in three pharmaceutical companies producing aerosols containing F-gases.

63. ***Agriculture***. Between 1990 and 2012, GHG emissions from the agriculture sector decreased by 55.3 per cent (178,457.44 kt CO_2 eq), mainly owing to a reduction in agricultural production, including a reduced use of arable lands by 13.3 per cent and a decrease in the use of chemical fertilizers (by 68.8 per cent between 1990 and 2011), as well as the use organic fertilizers, as a consequence of the reduction of animal and poultry production (by 65.8 per cent between 1990 and 2011).

64. In its NC6, the Russian Federation has reported on PaMs in the agriculture sector including short- and long-term programmes, which include policy elements relating to climate change mitigation. The more important policy instruments for this sector are the government programme on development of agriculture and agricultural production markets for 2008–2012 (government resolution no. 446 of 14 July 2007) and the new government programme on development of agriculture and agricultural production markets for 2013–2020 (government resolution no. 717 of 14 July 2012), which aim at promoting the rational use of agricultural lands, improving their fertility and reducing the negative impacts of water and wind erosion. These programmes were complemented by subsidies encouraging the amelioration and liming of soils. No information on targets or quantitative impacts of the implemented and planned PaMs in the agricultural sector was provided. The ERT encourages the Russian Federation to provide this information in its next national communication.

65. ***LULUCF***. The LULUCF sector was a net sink of 542,016.78 kt CO_2 in the Russian Federation in 2012, which offset 23.6 per cent of total GHG emissions of the Russian Federation in this year. Forest land and grassland are net sinks of GHGs, while cropland, wetland and settlement are net sources of GHGs. The LULUCF sector net emissions have decreased by 429.35 per cent (706,587.80 kt CO_2) since 1990, becoming a net sink from 1992 to 2012, mainly owing to the twofold reduction of harvesting of wood in the period 1994–2011 compared to the level in 1990. In 2011, the LULUCF sector contributed to the absorption of 628,400 kt CO_2 eq.

66. The Russian Federation is ranked as first in the world in terms of its forest resources, with a forested area of 1,183 Mha. The managed forests (664.1 Mha) constitute 73.7 per cent of all forest land area, with 85.6 per cent of the total timber stock and the major share in the dynamics of GHG emissions/removals. Forest logging and forest fires are the main factors determining the change of carbon stocks in managed forests. The twofold reduction of harvesting of wood in the period 1994–2012 compared to the level of 1990 contributed to the improvement of forests as net sink. However, forest fires pose a significant challenge with regard to climate change. Severe fires were noted in 2009 and 2010, affecting approximately 2111.6 kha. Estimates of total economic losses due to the forest fires vary from USD 15 billion to USD 300 billion. The latter number also includes the loss of timber.

67. In 2012, the Russian Federation adopted the government programme on developing the forestry sector for 2013–2020 (government resolution no. 2593 of 28 December 2012), which aimed at balancing forest use with reforestation and forest protection activities. The government programme also prioritized the importance of afforestation of non-forest lands and the establishment of sustainable forest landscapes in sparsely forested and non-forested areas as important adaptation measures that contribute to CO_2 absorption. However, the ERT noted that the programme does not provide targets related to the net GHG emissions. During the review, the ERT was informed by the Russian Federation that since 2013, the federal budget has allocated funds for afforestation and reforestation activities in the country, and that the main management responsibility lies with regional authorities.

Afforestation and reforestation are planned to restore the balance between losses from the exploitation of forests and forest fires and the increase in forest coverage.

68. ***Waste management***. Between 1990 and 2012, GHG emissions from the waste sector increased by 37.4 per cent. There has been a steady increase of CH_4 emissions from solid waste disposal on land since 1990, owing to an increase of solid waste generation by households (and partly by industry) and its disposal. The CH_4 emissions from solid waste disposal on land contributed 63.7 per cent to the total of the sector in 2012, followed by emissions from wastewater handling (36.3 per cent of the total, of which 19.9 per cent was from industrial wastewater). The ERT noted that the level of CH_4 emissions from wastewater significantly varied during 1990 and 2012, owing to the fluctuations of industrial production in the country and the corresponding volumes of industrial wastewater.

69. In the NC6, the Russian Federation reports on PaMs that consider a systemic approach based on prevention and minimization of waste generation, and recycling of waste. This approach suggests that there will be a differentiated approach to waste minimization for different economic activities that have, as a target, similar indices to those of developed countries. The minimization of waste generation will be achieved through efficiency of raw material use, selective collection, reuse, recycling and composting, as well as strict reporting of waste management by enterprises. The ERT noted that, since the submission of the NC5, where elaboration of technical specifications for landfills, which envisaged, inter alia, promotion of landfill gas collection and its use for energy purposes, was reported, no significant improvements have been achieved, as no information is provided in the NC6 on implementation of the above-mentioned measures.

70. The ERT noted that tables on PaMs in the NC6 do not indicate whether the primary goal of the respective PaMs for this sector is GHG emission reduction. The tables list the PaMs for different sectors, including industry, agriculture and waste, where the primary goals are often the supporting priorities of the sector, but which nevertheless also result in GHG emission reductions. The ERT encourages the Russian Federation to distinguish the main objectives of individual measures and report, in particular, on their impact on GHG emissions in its next national communication.

5. Policies and measures related to implementation of commitments under the Kyoto Protocol

71. The Russian Federation reported on its package of PaMs adopted, implemented and elaborated in achieving its commitment under the Kyoto Protocol.

72. The NC6 includes information on how the Russian Federation promotes and implements the International Civil Aviation Organization (ICAO)/International Maritime Organization (IMO) decisions to limit emissions from aviation and marine bunker fuels as recommended in the in-depth review report of the NC5. The Russian Federation informed the ERT during the review that any national policy when prepared takes into account the provisions adopted by ICAO and IMO. The main goal of governmental policy is to decrease the fuel consumption in international aviation to 0.23 kg/t/km by 2030. The Russian Federation informed the ERT during the review that a national plan is in preparation to implement the requirements of ICAO: improvement of the energy efficiency of aircraft by 2.0 per cent annually from 2011 to 2030, renewal of the aircraft fleet by 2030 and infrastructural and organizational measures (e.g. optimization of flight routes). In cooperation with IMO, the Russian Federation is involved in the implementation of measures targeting the efficiency of engines and operational measures to increase the fuel efficiency of vessels. Technical standards for fuel quality are adopted at the national level. The Russian Federation has ratified the International Convention for the Prevention of Pollution from Ships, protocol 27, annex VI.

73. In its NC6, the Russian Federation has not 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. During the review, the Russian Federation provided some relevant missing information. The information was provided to address the reporting requirements under Article 2, paragraph 3, and Article 3, paragraph 14, of the Kyoto Protocol. The ERT reiterates the recommendation from the previous review report that the Russian Federation report in its next national communication detailed 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 assessment of the economic and social consequences of response measures on other Parties, especially on developing country Parties. Further information on how the Russian Federation strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, as reported in the 2014 annual submission, is presented in chapter III.B below.

74. The information provided by the Russian Federation during the review underlined the efforts on the gradual reduction or elimination of market distortions, the provision of fiscal incentives (e.g. tax credits, tax reductions and exemptions for renewables in central heating and cooling) and the removal of subsides that contradict the objectives of the Convention in all sectors of GHG emissions. Among such measures, the Russian Federation has reported on the use of market-based instruments and enhancement of natural gas exports to developing countries to replace high-carbon fossil fuels.

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

75. The Russian Federation has followed the recommendation of the previous review report and reported in its NC6 GHG emission projections following ‘with measures’, ‘with additional measures’ and ‘without measures’ scenarios until 2030. However, the ERT noted that scenario definitions used by the Russian Federation do not correspond strictly with the scenario definitions in the UNFCCC reporting guidelines on NCs. The ERT recommends that the Russian Federation adhere closely to the scenario definitions in the UNFCCC reporting guidelines on NCs in its next national communication.

76. The ERT considers that an update of projections in the future in a consistent manner might be difficult, as a system for preparation of consistent, accurate and periodic GHG projections appears not to be implemented in the Russian Federation. However, the ERT noted that it is foreseen by the ‘action plan on achieving the target of reduction of the GHG emissions by 2020’ to establish a system of models for preparation of long-term GHG emission projections in a systematic way.

1. Projections overview, methodology and key assumptions

77. The GHG emission projections provided by the Russian Federation in the NC6 include a ‘with measures’, a ‘with additional measures’ and a ‘without measures’ scenario until 2030, presented relative to actual inventory data for 2010. Projections are presented on a sectoral basis and on a gas-by-gas basis for the following GHGs: CO_2, CH_4, N_2O and F-gases (HFCs, perfluorocarbons (PFCs), sulphur hexafluoride (SF_6)) treated collectively. The ERT recommends that the Russian Federation report on F-gas emissions separately (HFCs, PFCs and SF_6) in its next national communication. Projections are also provided in

an aggregated format for each sector, as well as for a national total, using global warming potential values.

78. Emission projections related to fuel sold to ships and aircrafts engaged in international transport were not reported separately as required by the UNFCCC reporting guidelines on NCs. In addition, information was not provided in the NC6 on whether emission projections related to fuel sold to ships and aircraft engaged in international transport are not included in the national totals. The ERT reiterates the recommendation made in the previous review report that the Russian Federation exclude the emission projections related to fuel sold to ships and aircraft engaged in international transport from the national totals, and report, to the extent possible, separate projections of emissions related to fuel sold to ships and aircraft engaged in international transport in its next national communication.

79. Although projections are presented on a sectoral basis, sector categories used in the projections section of the NC6 are not fully consistent with those used in the PaMs section. In response to a question raised during the review, the ERT was informed by the Russian Federation that, unfortunately, no reliable sectoral projections based on up-to-date sectoral economic scenarios were provided by relevant ministries or contained in other relevant publications. The ERT recommends that the Russian Federation provide information in the PaMs section and in the projections section using, to the extent possible, the same sectoral categories in its next national communication, in accordance with the UNFCCC reporting guidelines on NCs.

80. The ERT noted that the information on methodology, key assumptions and key variables used for projections is very limited in the NC6. Only the GDP growth rate and the population growth rate as main key variables are presented. During the review, the Russian Federation provided the ERT with the study *Costs and Benefits of Low-Carbon Economy and Society Transformation in Russia, 2050 Perspective*[13] and a scientific paper *Carbon Budget of Managed Forests in the Russian Federation in 1990–2050: Post-Evaluation and Forecasting*.[14] The ERT encourages the Russian Federation to improve the transparency and completeness of its reporting on projections by elaborating the information on methodology and key assumptions and key variables used for projections, and to include supportive documentation (studies, scientific papers, etc.) as references or an annex to its next national communication.

81. For preparing energy sector projections, the Russian Federation used the results of the study *Costs and Benefits of Low-Carbon Economy and Society Transformation in Russia, 2050 Perspective* and materials available in 26 other scientific publications that consider a total of 71 scenarios. Scenarios were grouped into five families; for the purpose of reporting the GHG emission projections in the NC6, there were three selected scenario families that were considered most appropriate to the definitions and criteria of 'without measures', 'with measures' and 'with additional measures' scenarios. However, the ERT noted that the original purpose of the study was not to provide projections to the NC6; thus, discrepancies in comparison to historical emissions occur, and, for example, it is not clear if the same emission factors and other parameters and same sectors and categories were used as in the national GHG inventory. The ERT noted that explanations of the original purpose of the reported projections, how they correspond with the national GHG inventory, and their strengths and weaknesses were not provided in the NC6. The establishment of scenarios also differs in relation to the original purpose of the projections and is not consistent with the requirements of the UNFCCC reporting guidelines on NCs. The ERT recommends that the Russian Federation provide in its next national communication a 'with

[13] <http://www.cenef.ru/file/CB-LCE-2014-eng.pdf>.
[14] <http://link.springer.com/article/10.3103%2FS1068373913100087>.

measures' projection which encompasses currently implemented and adopted policies and measures, if provided, a 'with additional measures' projection which encompasses planned policies and measures and a 'without measures' projection excluding all policies and measures implemented, adopted or planned after the year chosen as the starting point. In addition, the ERT encourages the Russian Federation to present its emission projections to actual inventory data for the preceding years and improve as much as possible the transparency of the information.

82. For preparing the projections for the LULUCF sector, the carbon budget model for the Canadian Forest Service, CBM-CFS3, was used to calculate the forest carbon stock and stock changes in the past and for the future. The same model was used for preparation of projections in the NC5; however, the differences in key assumptions and scenarios used were not clearly explained in the NC6. During the review, the Russian Federation explained to the ERT that a different number of scenarios was used, and that some key variables have also been changed. During the review, the Russian Federation also clarified that projections for the LULUCF sector cover only managed forests; this was not clearly reported in the NC6. The ERT encourages the Russian Federation to improve in its next national communication the transparency and completeness of its reporting by providing projections for all the categories of the LULUCF sector, information on what national GHG inventory sectors/categories are not covered by its projections and elaborate clear and comprehensive explanations on the difference between the key assumptions and main factors used to build scenarios, including by providing names and values of the key variables and assumptions.

83. The ERT noted that although projection estimates for all sectors are provided, comprehensive and detailed projections by sectors are performed only for the energy and LULUCF sectors. The Russian Federation has performed projections for the agriculture, waste and industrial processes sectors in a simplified manner by using the same trend of GHG emission growth rate as for the energy sector. However, this assumption was not clearly justified in the NC6. The ERT encourages the Russian Federation to prepare detailed and comprehensive projections for the industrial processes, agriculture and waste sectors and include explanations on the assumptions used in its next national communication.

84. The Russian Federation has not reported in its NC6 a sensitivity analysis of the obtained results. Energy-related GHG emission evolution trajectories until 2060 as projected by a number of research groups in 2008–2012, presented in the study *Costs and Benefits of Low-Carbon Economy and Society Transformation in Russia, 2050 Perspective*, show that the uncertainty zone of the projected energy-related GHGs emission trajectories was very large for papers written in 2008–2012: emission projections for 2050 range between 220,000 kt CO_2 eq and 6,500,000 kt CO_2 eq. This clearly shows that GHG emission projections are very sensitive to changes of key variables and assumptions, including PaMs. The ERT encourages the Russian Federation to increase the completeness and transparency of its reporting by providing a sensitivity analysis of key variables and assumptions in its next national communication.

2. Results of projections

85. The Russian Federation's target for the first commitment period of the Kyoto Protocol is a limitation of the increase of GHG emissions of 100.0 per cent of the base year level. The Russian Federation's average annual GHG emissions (2,235,370.58 kt CO_2 eq) in the period 2008–2012 were 32.7 per cent below its Kyoto Protocol target (3,323,419.06 kt CO_2 eq) without the use of Kyoto Protocol mechanisms and accounting for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol. The Russian Federation decided not to take quantitative limitations for the second commitment period of the Kyoto Protocol.

86. Under the Convention, the Russian Federation made a commitment to reducing its GHG emissions by 2020 to a level not higher than 75.0 per cent of the 1990 level (2,522,506.83 kt CO_2 eq or 25.0 per cent lower than the 1990 level), and this commitment is set out in its national policy. The ERT noted some inconsistencies in the information provided by the Russian Federation regarding its quantified economy-wide emission reduction target, for example, the ERT was not able to assess whether LULUCF was covered, or not, by this target. The ERT noted also that at this stage, it could be early to assess whether the Russian Federation will achieve its quantified economy-wide emission reduction target by 2020, as the concrete measures for implementation of this commitment are still under preparation. Government resolution no. 504 of 2 April 2014 on approving the 'action plan on achieving the target of reduction of the greenhouse gas emissions by 2020' was presented to the ERT only during the review week. Overall, the Russian Federation's reported projections of total GHG emissions for 2020 show an increasing emission trend. The ERT further noted that, according to the projections reported in the NC6, total emissions in 2020 are expected to be at levels (2,400,000 kt CO_2 eq and 2,250,000 kt CO_2 eq) that are 28.6 per cent and 33.1 per cent below the 1990 levels in the 'with measures' and 'with additional measures' scenarios, respectively. Therefore, under the 'with measures' and 'with additional measures' scenarios, the Russian Federation in 2020 could reach or even be below the target of 75.0 per cent compared to the 1990 levels, by 3.6 per cent (122,506.83 kt CO_2 eq) or 8.1 per cent (272,506.83 kt CO_2 eq), respectively.

87. The Russian Federation has reported projections of total GHG emissions for 2030 showing an increasing emission trend. Total emissions in 2030 in the 'with measures' scenario are expected to be at a level of 2,590,000 kt CO_2 eq and at a level of 2,260,000 kt CO_2 eq in the 'with additional measures' scenario, which are 23.0 per cent and 32.8 per cent below the 1990 levels, respectively.

88. On a gas-by-gas basis, the Russian Federation reported that CO_2 emissions in 2010 were 1,600,000 kt CO_2 eq. According to the projections, CO_2 emissions will increase to 1,730,000 kt CO_2 eq in 2020 in the 'with measures' scenario, and they will increase to 1,620,000 kt CO_2 eq in 2020 in the 'with additional measures' scenario. Projected non-CO_2 emissions show an increase in 2020.

89. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and quantified economy-wide emission reduction target are presented in table 5 and the figure.

Table 5
Summary of greenhouse gas emission projections for the Russian Federation

	Greenhouse gas emissions (kt CO_2 eq per year)	*Changes in relation to the base year[a] level (%)*	*Changes in relation to the 1990 level (%)*
Kyoto Protocol base year[b]	3 323 419.06	NA	–1.2
Kyoto Protocol target for the first commitment period (2008–2012)	3 323 419.06	0.0	–1.2
Kyoto Protocol target for the second commitment period (2013–2020)[c]	NA	NA	NA
Quantified economy-wide emission reduction target under the Convention	2 522 506.83	–24.1	–25.0
Inventory data 1990[c]	3 363 342.44	1.2	NA
Inventory data 2012[c]	2 295 045.38	–30.9	–31.8

	Greenhouse gas emissions (kt CO_2 eq per year)	*Changes in relation to the base year[a] level (%)*	*Changes in relation to the 1990 level (%)*
Average annual emissions for 2008–2012[c]	2 235 370.58	–32.7	–33.5
'Without measures' projections for 2020[d]	2 860 000	–13.9	–15.0
'With measures' projections for 2020[d]	2 400 000	–27.8	–28.6
'With additional measures' projections for 2020[d]	2 250 000	–32.3	–33.1
'Without measures' projections for 2030[d]	3 490 000	5.0	3.8
'With measures' projections for 2030[d]	2 590 000	–22.1	–23.0
'With additional measures' projections for 2030[d]	2 260 000	–32.0	–32.8

Abbreviation: NA = not applicable.

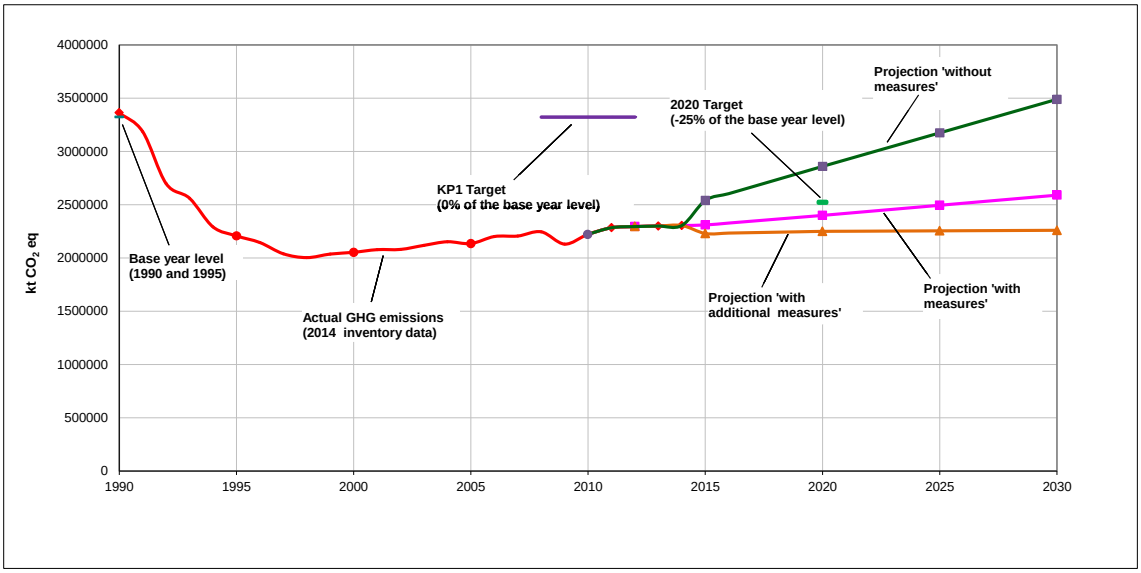
[a] "Base year" in this column refers to the base year used for the target under the Kyoto Protocol.

[b] The Kyoto Protocol base year level of emissions is provided in the initial review report contained in document FCCC/IRR/2007/RUS.

[c] Russian Federation's 2014 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry.

[d] Russian Federation's sixth national communication and/or first biennial report.

Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2012: Russian Federation's 2014 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry; (2) Data for the years 2010–2030: Russian Federation's sixth national communication and/or first biennial report; the emissions are without land use, land-use change and forestry.

Abbreviations: GHG = greenhouse gas, KP1 = first commitment period of the Kyoto Protocol.

3. Total effect of policies and measures

90. In the NC6, the Russian Federation did not present the estimated and expected total effect of implemented and adopted PaMs in tabular format. However, the ERT noted that this effect can be calculated as the difference of data reported for the 'with measures' scenario and the 'without measures' scenario provided in the NC6. Information is presented in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis), for 2015, 2020 and 2030, and for total national emissions and for the energy sector only, while for other sectors (industry, agriculture, LULUCF and waste), the information is not available. The ERT recommends that Russia present the total effect of its PaMs, in accordance with the 'with measures' definition, compared to a situation without such PaMs. The ERT encourages the Russian Federation to improve the transparency and completeness of its reporting by presenting the total effect of PaMs in a separate table, and to provide estimated and expected total effects of implemented and adopted PaMs by sectors.

91. The PaMs section of the NC6 provides information on national, regional and company measures on GHG emission reduction. However, the information provided is not transparent enough to understand which measures overlap and which are supplementary at different levels. The ERT encourages the Russian Federation to provide information on how methodologies used account for the overlap and synergies between PaMs, as required by the UNFCCC reporting guidelines on NCs.

92. The PaMs section of the NC6 contains a long list of PaMs; however, it is difficult to understand which measures are included in the 'with measures' and the 'with additional measures' scenarios. The ERT encourages the Russian Federation to increase the transparency of reporting in its next national communication, by clearly indicating which measures are included in 'with measures' scenario, for example, by providing information in tabular format and indicating that a measure is included in the 'with measures' projections.

93. The effect of the measures, calculated as the difference between data reported for the 'with measures' scenario and the 'without measures' scenario shows that the total estimated effect of adopted and implemented PaMs is 460,000 kt CO_2 eq in 2020 and 900,000 kt CO_2 eq in 2030. According to the information reported in the NC6, PaMs implemented in the energy sector will deliver the largest emission reductions. The Russian Federation has not provided information on the effect of PaMs implemented in other sectors. The ERT recommends that the Russian Federation provide information on the total effect of its adopted and implemented PaMs for all sectors in its next national communication. The most effective PaMs and drivers behind GHG emission reductions are described in chapter II.B above. Table 6 provides an overview of the total effect of PaMs, as reported by the Russian Federation.

Table 6
Projected effects of planned, implemented and adopted policies and measures in 2020 and 2030

Sector	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*
	2020				*2030*			
Energy (with transport)	370 000.00	11.0	140 000.00	4.2	740 000.00	22.0	270 000.00	8.0
Transport	NA	NA	NA	NA	NA	NA	NA	NA
Industrial processes	NA	NA	NA	NA	NA	NA	NA	NA

Sector	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*
	2020				*2030*			
Agriculture	NA	NA	NA	NA	NA	NA	NA	NA
Land-use change and forestry	NA	NA	NA	NA	NA	NA	NA	NA
Waste management	NA	NA	NA	NA	NA	NA	NA	NA
Total	**460 000.00**	**13.7**	**150 000.00**	**4.5**	**900 000.00**	**26.8**	**330 000.00**	**9.8**

Source: Russian Federation's sixth national communication and/or first biennial report.

Note: The total effect of implemented and adopted policies and measures is defined as the difference between the 'without measures' and 'with measures' scenarios; the total effect of planned policies and measures is defined as the difference between the 'with measures' and 'with additional measures' scenarios.

Abbreviation: NA = not available.

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

94. The Russian Federation in its NC6 did not provide explicit information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action and did not elaborate on supplementarity as such. The ERT noted that the Russian Federation does not need to use market-based mechanisms to meet its Kyoto Protocol target, as its total GHG emissions are below the Kyoto Protocol target for the first commitment period without the use of Kyoto Protocol mechanisms.

95. According to the information provided in the NC6, under Article 6 of the Kyoto Protocol, there were 150 applications for investment projects, with total emission reductions of 381,300 kt CO_2 eq. From this amount, within the 2010–2012 period, the Ministry of Economic Development of the Russian Federation approved 108 investment projects covering key sectors of the economy in the country. In May 2012, this ministry stopped the approval of these projects because the limit of 300,000,000 units for operations with Kyoto Protocol units established by the government in 2011 had been reached. However, the ERT noted that the information provided in the NC6 does not allow the understanding of how many of these 108 approved investment projects have actually been implemented and how many are still ongoing or concluded. In addition, the actual expected emission reductions are not reported in the NC6. The ERT noted that the Russian Federation reported some information on the use of flexible mechanism units in its first biennial report (BR1) and common tabular format (CTF) tables. However, the information provided in the BR1 and CTF table 4, and considering in addition the information in CTF table 2(e)I, does not allow full understanding of whether the Russian Federation is planning to use flexible mechanism units to achieve its target. Moreover the data provided are not accurate (see chapter II.C, "Progress made towards the achievement of the quantified economy-wide emission reduction target", of the report of the technical review of the BR1). The ERT recommends that the Russian Federation clearly report on whether it intends to use the Kyoto Protocol mechanisms and provide, as appropriate, information on how its use of the Kyoto Protocol mechanisms is supplemental to domestic action, as well as increase its consistency of reporting in its next national communication.

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

1. Financial resources, including "new and additional" resources and resources under Article 11 of the Kyoto Protocol

96. In its NC6, the Russian Federation has provided information on provision of support required under the Convention and its Kyoto Protocol. The Russian Federation indicated that as a Party included in Annex I to the Convention, but not included in Annex II, it did not provide financial resources pursuant to Article 4, paragraph 3, of the Convention nor support and financial resources to developing countries under Article 11 of the Kyoto Protocol, including "new and additional" resources.

97. The ERT noted that the Russian Federation did provide some resources through multilateral channels related to the implementation of the Convention in previous years; therefore, the ERT encourages the Russian Federation to report in its next national communication information on the provision of any financial resources related to the implementation of the Convention provided through bilateral, regional and other multilateral channels, including the Global Environmental Facility.

2. Technology transfer, including information under Article 10 of the Kyoto Protocol

98. The Russian Federation has provided in its NC6 summary information on activities related to the transfer of technology and support to developing countries in accordance with Article 4 of the Convention and under Article 10 of the Kyoto Protocol.

99. The vast majority of the climate change related capacity-building activities reported in the NC6 are related to the support provided by the Russian Federation to strengthen the capacity of developing countries in the area of climatology and meteorology through education of students and postgraduates in higher educational institutions and postgraduate schools within the framework of existing international agreements. In addition, students and postgraduate students from countries of the Commonwealth of Independent States (CIS) also receive higher education in this area in institutions of the Russian Federation.

100. The Russian Federation also conducted capacity-building activities and exchange of information and technical knowledge and, to some extent, transfer of environmental sound technologies through conferences, seminars and exhibitions, with participation of international experts, including experts from developing countries. An important number of such activities held during 2010–2013 were organized by the Federal Agency for Science and Innovation, Russian Academy of Sciences (RAS), Roshydromet and other organizations.

101. During the review, the Russian Federation provided additional information on certain activities on technology transfer and capacity-building support to developing country Parties, particularly on management and operation of nuclear power plants by the state corporation Rosatom. The ERT reiterates the recommendation from the previous review report that the Russian Federation provide, in its next national communication, more comprehensive information on its activities, actions and programmes undertaken in fulfilment of its commitments under Article 10 of the Kyoto Protocol, including success and failure stories, and its activities for financing access by developing countries to 'hard' or 'soft' environmentally sound technologies.

E. Vulnerability assessment, climate change impacts and adaptation measures

102. In its NC6, the Russian Federation has provided the required information on the expected impacts of climate change in the country and on adaptation options. However, the ERT noted that the Russian Federation did not provide information on the actions 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. The ERT recommends that the Russian Federation provide in its next national communication information on actions taken to implement Article 4, paragraph 1(e), of the Convention.

103. The ERT noted that the CDRF set adaptation as one of the priority areas of climate change in the country and identified the strategic approaches to adaptation work in the country. The Ministry of Natural Resources and Environment is the entity responsible for monitoring the implementation of CAP on implementing the CDRF by 2020 and for reporting the progress to the government on an annual basis, by 15 March each year. During the review, the Russian Federation provided additional information elaborating on the progress of implementation of the adaptation measures included in CAP by 2020. Table 7 summarizes the information on vulnerability and adaptation to climate change presented in the NC6.

Table 7
Summary of information on vulnerability and adaptation to climate change

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	*Vulnerability*: Pests with a life cycle strongly dependent on climate (e.g. locusts and Colorado beetles) become more active in the European part of the country and in Siberia, owing to gradual expansion of their areal to the north and east. Warming in arid areas of the Russian Federation territory may increase the negative impacts of pests on crop yields. In the large areas of the European part of the Russian Federation, a mild decreasing trend (by 1 per cent in 10 years) in the productivity of cereals and leguminous crops owing to climate change was revealed. According to prospective estimates, further warming at the current levels of moisture and soil fertility in the middle of the twenty-first century will lead to an increase in bioclimatic potential and productivity of main grain crops in the Russian Federation. However, by the end of the twenty-first century, in the conditions of a continuing increase in mean annual air temperature, the bioclimatic potential and productivity of crops will significantly decrease compared to current levels in some areas of the Russian Federation. *Adaptation*: The basic adaptation measures include: (a) further development of the agriculture sector in the non-chernozem zone of the Russian Federation (central and north-western federal district); (b) optimization of the distribution of cultivated areas of winter and spring crops; (c) expansion of the cultivated areas of thermophile (maize, sunflower, sorgo, soybean, etc.) and stubble crops; (d) further development of irrigated agriculture and implementation of the federal target programme ‘development of irrigation on agricultural lands of the Russian Federation within the 2014–2020 periods’; (e) extension of the zone of subtropical agriculture in the southern part of the country and acceleration of the development of such branches as horticulture and viticulture, and cultivation of cotton and rice, the effectiveness of which can significantly increase under anticipated climate warming; (f) improvement of the efficiency of livestock because of increased forage as a result of the growth of bioclimatic potential and shortening of the period of confinement of cattle under anticipated climate warming; (g) development of comprehensive moisture-saving technologies, use of more heat-resistant crops and varieties, and creation of reserve stocks of food in order to reduce possible losses from arid climate and ensure food security; and (h) strengthening of the efficiency of federal and regional services on plant protection, especially at borders of the current areas of distribution of the major climate-induced pests and diseases of agricultural crops, etc.

Vulnerable area	*Examples/comments/adaptation measures reported*
Biodiversity and natural ecosystems	*Vulnerability*: There is a tendency for shifts of vegetation zone boundaries, mainly to the north, as well as for changes in ecosystem structures. In the European part of the Russian Federation forest areas, in the long-term, perspectives will extend to the north, and in the condition of humid warming, also to the south. In Siberia, forest areas will decrease, while floristic diversity may increase. Potentially, phenological changes may lead also to misalignment of interspecific interactions in ecosystems, while changes in vegetation zone boundaries, in altitudinal belts of vegetation in the mountains and in the structure of ecosystems may cause the loss of unique natural features and original images of some natural reservations and protected areas, as well as the inability to carry out essential environmental functions. *Adaptation*: no information has been reported.
Fisheries	*Vulnerability*: Climate change is causing an increase in the temperature of the sea surface layer and therefore a decrease in salinity; thus, there is an increase in the vertical stratification of water, a decrease in wind speed, an increase of the income component of the water balance and an increase of the level of Black and Azov Seas in the coastal zones of the Russian Federation. The decrease in salinity is considered a favourable factor for freshwater fish species, and in the future, an increase in the catch of fish in these basins is expected. On the other hand, climate change may influence changes in the thermohaline structure of deep-water areas of the Caspian Sea (salinity increase/vertical salinity stratification may replace the previously existing uniform salinity over the entire water column). This phenomenon may cease ventilation of the intermediate and abyssal layers of the sea, which will negatively affect the ecological state of the sea and may exert significant adverse influences upon abiotic and live components of the ecosystem, also affecting the fishing industry in the waters of the Russian Federation. *Adaptation*: No information has been reported.
Coastal zones	*Vulnerability*: The highly probable increase of the Black Sea level in coming decades will induce coastal erosion and partial flooding of coastal infrastructure and settlements on the Azov Sea coasts. The increase in the average level of the Azov Sea by only 0.5–1 m, taking into consideration the wind-driven wave oscillations, will lead to further erosion of its coasts. In the Kuban river delta, the rise of sea level by 0.5–1 m could lead to flooding of up to 900 km^2 of floodplains and adjacent low-lying terraces and creation of an extensive sea bay. Tuzla, Markitanskaya and Rubanova forelands will be fully or largely blurred, while Chushka foreland will be significantly destroyed. In addition, a further rise in the sea level on the Caspian Sea, up to 26.0 m, will lead to the destruction and flooding of many coastal communities and of social and production facilities in the Russian Federation and other Caspian basin countries. *Adaptation*: For protecting the coastal zones from the expected sea level rise, the following adaptation measures for the zones of permanent flooding were proposed: construction of protective hydraulic structures of concrete; construction of protective dams from sand and pebble mixtures; enforcement of the seaside against erosion and restoration of beaches; evacuation of properties and movement/demolition of coastal infrastructure and settlements.
Forests	*Vulnerability*: Climate warming will positively affect forest productivity; however, owing to climate warming, the frequency of heat waves and elevated maximum temperatures and the risk of forest fires will increase. Thus, compared with the reference period of 1981–2000, by 2030, the following increases in the number of days with high fire risk are expected: by 9 days in almost all areas of the European part of the country, in Western Siberia and the southern part of Eastern Siberia, and by 10–19 days in some areas of the south and west of the European part of the country, as well as in the south of Siberia. By the end of the twenty-first century, the increase in the number of days with high fire risk will constitute 20–29 days in the European part of the Russian Federation, as well as in Western Siberia and partly in Eastern Siberia; in some areas, the increase may be even more, around 30–50 days. *Adaptation*: Effective adaptation to forest fires will be raised by implementing a comprehensive programme on forest protection, providing for increased fire safety in forests and remote operational monitoring of forests, and preventing forest fires through

Vulnerable area	*Examples/comments/adaptation measures reported*
	improvement of forest infrastructure and firefighting arrangements.
Human health	*Vulnerability*: Occurrence of viral diseases will have a negative impact on some groups of the population. The negative impacts of heat waves and long periods of extremely hot weather have been noted, specifically in urban areas of risk groups (children, the elderly and people with chronic diseases of the circulatory and respiratory systems). The combination of heat waves and increased air pollution may intensify negative effects under adverse meteorological conditions. Deterioration of water quality may also occur in some regions, specifically in the southern and northern Caucasus federal districts of the Russian Federation. In addition, climate change may lead to changes in the conditions of expansion of certain infectious and parasitic diseases in humans and animals (e.g. acarida-borne encephalitis, Lyme disease, Northern Asia acarida-borne typhus, haemorrhagic fever with renal syndrome, Crimean haemorrhagic fever, West Nile fever and malaria), and the areal of these diseases is expected to increase in northern, north-eastern and eastern parts of the Russian Federation. A similar expansion is expected in relation to the areal of some small rodents, which are reservoirs of natural focal infections and transmission vectors of infections. *Adaptation*: Developing adaptation plans for population of urban areas that are more exposed to heat waves. Adopting plans to strengthen the epidemiological surveillance of climate-sensitive infectious diseases and introducing appropriate prevention measures. Developing plans for inter-institutional cooperation on combating adverse impacts of climate change on human health between the meteorological and health services, social security and other departments at the local (municipal and city), regional and federal levels. Other measures may include: installation of air-conditioning systems in residential and industrial facilities and increases in their availability on the market, development of health and recreation facilities, dissemination of information on forecasting and weather conditions, and continuous monitoring of contagious and parasitic pests, their habitats and affected populations.
Buildings and infrastructure	*Vulnerability*: By the middle of the twenty-first century, almost the entire territory of the Russian Federation is expected to experience an increase of seasonal winter precipitation. In the European part of the country, this increase may reach 10–70 mm (depending on the area) compared with the level of the 1981–2000 period, while in the Asian and northern part of the country, the increase may reach up to 40 mm. This is an additional risk factor, specifically when designing light coatings for new buildings and constructions, the net weight of which is less than the standard snow load. In addition, the expected climate warming during the winter season over large areas of the Russian Federation will cause an increase in the frequency of transitions through 0 °C air temperature, leading to accelerated ageing of buildings and construction envelopes, roads and other infrastructure. The reliability and durability of buildings, constructions, transport systems and infrastructure may be compromised also in connection with an offset to the north of the southern boundary of the permafrost zone. The characteristics of some construction elements may change during operation, as these are influenced by climatic factors and aggressive factors of the external and internal environments, thus affecting the reliability and durability of the buildings and infrastructure. *Adaptation*: New approved technical regulation on safety of buildings and constructions requests that in the technical design, documents should further specify the parameters characterizing resistance to adverse actions of climatic and other aggressive environment factors and/or measures to protect buildings, constructions and infrastructure from such influences. The Ministry of Regional Development of the Russian Federation currently conducts scientific validation and is developing a range of measures focused on minimizing the risks of reducing the reliability and durability of buildings, constructions, transport systems and infrastructure located in the permafrost zone. The same ministry updated the building standard ‘on thermal protection of buildings’ (SNIP 23-02-2003) in accordance with up-to-date requirements for buildings and constructions, in order to ensure thermal protection and energy efficiency, including the efficiency of thermal energy consumption and ventilation during the heating season.

Vulnerable area	*Examples/comments/adaptation measures reported*
Water resources	*Vulnerability*: In the twenty-first century, in the whole territory of the Russian Federation, under existing demographic trends, the potential water availability per capita may increase by 5–10 per cent due to the expected increase in water resources. However, in the densely populated areas of central, southern and northern Caucasus federal districts, a decrease in water availability owing to climate change and increased water consumption and population growth can be expected. *Adaptation*: In the regions with expected reductions in water resources, adaptation measures are aimed at: accumulation of water in water reservoirs; diversion of water flow from other river basins; creation of alternative sources of water supply, in particular, for agriculture, irrigation and energy production; optimization of water use and reduction of water losses during transportation; and introduction of up-to-date technologies of water consumption in the industrial and energy sectors.

104. According to the NC6, the buildings and infrastructure, coastal zones, agriculture, forestry, water resources and human health sectors could be the sectors most affected in the Russian Federation by the negative impacts of climate change. As reported by the Russian Federation in its NC6, the impacts of climate change can be positive or negative, owing to the geographical locations of particular regions, the territorial spread and the size of the country.

105. In the NC6, the Russian Federation reported on an assessment of the impacts of climate change on human health, including the distribution of some diseases caused by climate change, and studies on the impact of heat waves and long periods of extremely hot weather, conducted in 24 regions and republics located specifically in the Volga river basin, which detected negative consequences for morbidity and mortality in the most vulnerable groups of the population. According to some studies presented during the review, the frequency and severity of heat waves has increased over the past decade, and with an increasing frequency of heat waves and elevated maximum temperatures, the risks for the most vulnerable groups of the population (children, the elderly and people with chronic diseases of the circulatory and respiratory systems) will increase in the twenty-first century.

106. The NC6 also provided information on an assessment of the vulnerability of some other sectors of the economy, such as the coastal zones. The highly probable increase of the Azov and Caspian Sea levels in the coming decades will lead to flooding of many coastal communities and to the destruction of social and production facilities on the coasts.

107. The ERT noted that the focus of the NC6 is on adaptation activities, and that there is a shift in the focus of the NC6, from vulnerability to adaptation compared to the NC5, as well as an increase of the completeness and transparency of the reported information. It is stated in the NC6 that vulnerability assessments of WEHAB elements (Water, Energy, Health, Agriculture and Biodiversity) were undertaken based on materials available in the second assessment report of Roshydromet on climate change and its impact on the territory of the Russian Federation.[15] The ERT commends the Russian Federation for its efforts in this regard, and further encourages the Party to provide in its next national communication more quantitative estimates of the future impacts of climate change (i.e. expected socioeconomic impacts of climate change on different sectors of the national economy).

108. During the review, the ERT was provided with additional information on cooperation with non-Annex I Parties, specifically with CIS countries, in preparing for adaptation. The ERT learned that a fruitful cooperation exists with CIS countries via the North EurAsia Climate Centre (NEACC)[16], which was established by the

[15] <http://voeikovmgo.ru/images/download/2014/RAR2_GS_2014.pdf>.
[16] <http://neacc.meteoinfo.ru/>.

Intergovernmental Council for Hydrometeorology of the CIS (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Uzbekistan and Ukraine) in 2007, with the aim to provide regional climate-related services to CIS countries. NEACC works as one of the long-range forecast nodes of the Regional Climate Network of the Regional Association VI (Europe). On the NEACC website, there is a range of relevant publications, such as seasonal and annual bulletins on climate and climate monitoring in the Russian Federation and CIS countries;[17] daily series for 223 meteorological stations on the territory of CIS countries;[18] results of scientific research on climate change projections and impacts on the Russian Federation and Central Asia States;[19] and training material used for training specialists on forecast downscaling.[20]

F. Research and systematic observation

109. The Russian Federation has provided information on its actions relating to research and systematic observation, and addressed both domestic and international activities, including the World Climate Programme, the Global Climate Observing System (GCOS) and the Intergovernmental Panel on Climate Change (IPCC). The NC6 also reflects action taken to support related capacity-building in developing countries. The NC6 reports that several institutions have been involved in activities related to research and systematic observation, notably Roshydromet and its dependent institutions, the research institutes of RAS and specialized education institutions such as the Russian Hydrometeorological University and the related departments of other state universities.

110. Furthermore, the Russian Federation has provided in its NC6 a summary of information on GCOS activities and includes a separate report that outlines these activities in great detail, following 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 the area of climate research and systematic observation. The Russian Federation attaches high importance to research and observation, and financial support provided to related activities is relatively high.

111. However, the ERT noted that limited information is provided in the NC6 on the actions taken to support capacity-building in developing countries and to support these countries to establish and maintain observing systems and related data and monitoring systems. During the review, the Russian Federation provided information on the actions taken to support related capacity-building activities in developing countries and programmes targeted at providing support for developing countries to maintain observing systems and related data and monitoring systems. The ERT recommends that the Russian Federation include information on such actions and programmes in its next national communication, in particular on actions taken to support capacity-building in developing countries relating to research and systematic observation.

112. The NC6 reports that the Russian Federation, through Roshydromet, is implementing a number of federal programmes on climate and climate change research that support research in fundamental and applied science, including the following:

(a) Federal programme ‘scientific research and development in the area of hydrometeorology and environmental monitoring’ (2011–2013) and its subprogrammes ‘the environmental monitoring system and development of technologies for data collection,

[17] <http://seakc.meteoinfo.ru/climatemonitoring>.
[18] <http://neacc.meteoinfo.ru/monitoringdata>.
[19] <http://neacc.meteoinfo.ru/research>.
[20] <http://neacc.meteoinfo.ru/training>.

archiving, dissemination and management of observed data' and 'researching climate, climate change and its impact. Assessment of the hydrometeorological regime and climate resources';

(b) Federal programme 'setting up and developing a geophysical environmental monitoring system for the Russian Federation' (2008–2015);

(c) Federal programme 'world ocean', with research specifically focused on the Antarctic and on the establishment of a common information system on the current state of the world's oceans.

113. The Russian Federation is also implementing a federal programme 'on research and innovation in the priority directions of the development of the scientific and technological complex of the Russian Federation' (2007–2013) under the auspices of the Ministry of Education and Science of the Russian Federation. Within this programme, the work was organized on a project basis, focusing on the development of methods for monitoring the atmosphere, lithosphere and water bodies, in-depth research on the environment of certain regions, development of climate models and identification of adaptation measures. Within the programme, in 2012, RUB 1.2 billion from the federal budget was allocated under 132 state contracts focused on undertaking scientific research and engineering and technological work on climate issues. For the thematic area focused on promoting improvements in energy and resource use, diversification of energy sources and the implementation of low-carbon technologies, in 2012, RUB 1.18 billion from the federal budget was allocated under 126 state contracts, from which 53 per cent was for energy saving technologies, 30 per cent was for renewable energy resources and 17 per cent was for the implementation of low-carbon technologies.

114. In the frame of the federal programme 'scientific and scientific-pedagogical staff of innovative Russia' (2009–2013) implemented under the auspices of the Ministry of Education and Science of the Russian Federation, approximately RUB 198.80 million from the federal budget was allocated to the universities and institutes conducting research in the field of climate change, of which RUB 30.08 million was used in 2013. The main areas of research include: the development of new research methods; the monitoring and predicting of the state of the atmosphere and hydrosphere in the context of climate change; the forecasting of the level of pollution by industrial enterprises of the atmosphere and hydrosphere of human settlements; and the assessment of the dynamics of the melting of Arctic ice and the impacts of climate change on Arctic ecosystems.

115. For implementing the federal programme 'world ocean', focused on the Antarctic, and on the establishment of a common information system of the current state of the world's oceans, RUB 45 million was allocated within 2008–2010 from the federal budget, while for 2011–2013, the allocation increased to RUB 97.43 million.

116. In addition, within the CAP on implementing the CDRF by 2020, work will continue until 2020 in three key areas: research on the climatic system of the earth; climate forecasting for the short- and long-term at the regional to global levels; and climate change impacts, risks, vulnerabilities and advantages. During 2011–2013, research activities were focused on the preparation of the second assessment report of Roshydromet on climate change and its impact on the territory of the Russian Federation.

117. According to the NC6, RAS is conducting a scientific research programme until 2025 in the area of the environment and climate change, including: research, monitoring and forecasting of the state of the environment; natural disasters and analysis and assessment of natural risks and volcanism; the physical and chemical processes in the atmosphere, thermodynamics, radiative transfer and changes in the composition of the atmosphere. A number of sectoral ministries and specialized public organizations conduct thematic research projects in the area of climate change, for example, the Ministry of

Natural Resources and Environment, the Federal Forestry Agency, the Ministry of Agriculture and the Ministry for Affairs for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters.

118. According to the NC6, Roshydromet and its dependant 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, from which 139 stations are part of GCOS (135 stations in the territory of the Russian Federation and 4 stations in the Antarctic). Most of these stations have collected data since 1951. The focus of terrestrial observations is on permafrost, glaciers, carbon flux and monitoring of land use and land-use change. The Russian Federation also has an extensive observation network of 230 coastal and island hydrometeorological stations and posts, with a focus on sea surface temperature, salinity, sea ice, sea level and observations in the Arctic and the Antarctic.

119. Three Russian satellites (Meteor, launched in 2009; Electro, launched in 2011; and Kanopus, launched in 2012) and a number of international satellites collect data that are acquired and stored by the Planeta Institute of Roshydromet, which hosts one of the two world meteorological data centres, for subsequent use for climate and environmental monitoring and studying the impact of climate change on nature and ecosystems.

120. The Russian Federation is also actively participating in international projects and programmes for climate research and observation supported by the World Meteorological Organization, the United Nations Environment Programme, the Intergovernmental Oceanographic Commission, the United Nations Educational, Scientific and Cultural Organization, the International Council for Science, and other organizations (World Climate Research Programme, GCOS, World Climate Programme, Global Ocean Observing System, Global Sea Level Observing System and Global Earth Observing System of Systems).

121. The Russian Federation has also participated in a range of other programmes and in activities related to the Convention and the IPCC, including the preparation of the Fifth Assessment Report of the IPCC. During the review, the Russian Federation provided the ERT with additional information on programmes that it implemented for the purpose of research and systematic observation, with reports on features of the climate on the territory of the Russian Federation and with the first and second assessment reports of Roshydromet on climate change and its impact on the territory of the Russian Federation. The ERT encourages the Russian Federation to include to the extent appropriate this information in its next national communication.

G. Education, training and public awareness

122. In the NC6, the Russian Federation has provided information on its actions relating to education, training and public awareness at the domestic and the international levels. Compared with the NC5, the Russian Federation provided more extensive and detailed information on education and training, as well as on public awareness activities.

123. Education activities in the area of climatology and hydrometeorology are coordinated by the Ministry of Education and Science through the Education and Methodology Association in the area of hydrometeorological education (UMA in Russian), which was created on the basis of the Russian State Hydrometeorological University (RSHU), in the structure of which are also included similar departments of other universities of the Russian Federation. It should be noted that since 2003, UMA has been a member of the University Corporation for Atmospheric Research. A number of universities

from CIS countries are also members of UMA (Belarus, Kazakhstan, Kyrgyzstan and Ukraine).

124. In its NC6, the Russian Federation also provided detailed information on activities at the university level, including the training of specialists on climatology and hydrometeorology in 16 universities. The most relevant higher education establishments are RSHU, M.V. Lomonosov Moscow State University, Saint Petersburg State University and Admiral Makarov State University of Maritime and Inland Shipping, where students may obtain BA, MSc and PhD degrees in meteorology, climatology, agroclimatology, hydrometeorology, hydrology, hydrochemistry, ecology, geoecology, geography and geoinformatics. PhD degrees in the above-mentioned areas may also be obtained at leading scientific institutions, such as the Russian HydroMetCentre of Roshydromet, the Institute of Global Climate and Ecology of Roshydromet and RAS, the A.M. Obuhov Institute of Atmospheric Physics of RAS and the Institute of Geography of RAS.

125. The secondary education establishments that provide education in meteorology, hydrology, environmental protection and rational use of natural resources, use of meteorological radiotechnical systems, automatic systems of data processing and management are the Moscow Hydrometeorological College, the Aleksinskii Hydrometeorological College in Tula, the Hydrometeorological College in Vladivostok of the Roshydromet, the Hydrometeorological College in Irkutsk, the Hydrometeorological College in Rostov-on-Don and the Hydrometeorological College in Tuapse.

126. As reported in the NC6, climate change and environmental disciplines have been introduced also into the curricula of primary and secondary education institutions. Basic information on climate change is provided to preschool and primary school children through 'the world around us' discipline, while at the secondary school level, this knowledge is provided to pupils in geography, biology and chemistry disciplines. For attracting the attention of pupils and students to climate change and environmental protection, as well as for increasing the efficiency of education process, annual Olympiads (competitions) are organized for secondary school pupils and students of colleges and universities under the auspices of the Ministry of Education and Science of the Russian Federation at the federal and regional levels, with the support of relevant partners such as the Russian Geographical Society and the geographical journal *Around the world*.

127. There are a number of specialized booklets and encyclopedias published on weather and climate for preschool and primary school children. In addition, on the Roshydromet website, there is a page entitled *Climate for Kids*,[21] which provides explanations to children on what is climate, why is climate changing, why is climate change dangerous and how to reduce the adverse effects of climate change on the environment.

128. The Russian Federation in its NC6 provides detailed information on publications related to climate change, including popular scientific publications. Most of the publications and scientific papers are available on the websites of Roshydromet,[22] the Institute of Global Climate and Ecology[23] and other Russian leading scientific and research institutions. Since 2004, Roshydromet has annually prepared and published on its website the report on climate features on the territory of the Russian Federation.[24] In 2008, Roshydromet prepared and published the assessment report of Roshydromet on climate change and its impact on the territory of the Russian Federation,[25] and in 2014, it published

[21] <http://global-climate-change.ru/index.php/en/childrenpage->.

[22] <http://global-climate-change.ru/index.php/en/publications>.

[23] <http://www.igce.ru/category/informacionnye-produkty-obzory-doklady-i-dr>.

[24] <http://global-climate-change.ru/index.php/en/climaterf>.

[25] The full report is available at <http://climate2008.igce.ru/v2008/htm/index00.htm>; a summary in English is available at <http://climate2008.igce.ru/v2008/pdf/resume_ob_eng.pdf>.

the second assessment report of Roshydromet on climate change and its impact on the territory of the Russian Federation.[26]

129. For the purpose of informing a wide range of experts and the public concerning climate and its change, Roshydromet has released a monthly newsletter, *Climate Change*, since April 2009.[27] The newsletter is available at the Roshydromet website and distributed via e-mail to more than 460 subscribers including scientific research institutes, Roshydromet educational institutions, RAS, non-governmental organizations, scientific publishing houses, mass media, diplomatic missions and Russian experts working abroad. The newsletter is also distributed to subscribers in Austria, Belarus, Finland, Germany, Israel, Japan, Kazakhstan, Kyrgyzstan, Mongolia, Republic of Moldova, Sweden, Ukraine, United States of America and Uzbekistan. The newsletter pays attention to research and climate monitoring carried out by the research and territorial organizations of Roshydromet and information on new publications, various Russian and international conferences, seminars and the work of young scientists.

130. On the website of the Institute of Global Climate and Ecology,[28] there is a range of relevant publications, such as reports and seasonal and annual bulletins on climate, climate monitoring, climate impacts, GHG inventory reports, national communications, environment and environmental pollution and water ecosystems in the Russian Federation and CIS countries.

131. The ERT also learned during the review that the Russian Federation is organizing a growing number of conferences, seminars, exhibitions, meetings and training workshops, focused on capacity-building, exchange of knowledge, sharing of experience and transfer of technologies, with both a scientific and a practical character, with the involvement of national and international participants, including from developing countries.

132. The Russian Federation is also creating publications, media events and Internet sites dedicated to awareness-raising on climate change issues, including independent public reviews and public hearings on energy, industry and forestry policies.

133. In its NC6, the Russian Federation has reported that non-governmental organizations, such as the International Socio-Ecological Alliance (ISEA)[29], the Ecological Alliance Bellona,[30] the Centre for Efficient Use of Energy[31] and the Interregional Public Youth Environmental Organization Friends of the Baltic,[32] prepare and implement a range of climate change awareness-raising and educational activities. ISEA publishes a weekly bulletin entitled *ISEA news*, which is aimed at drawing the attention of the public and policymakers to human impacts on the biosphere, climate and environment. The World Wild Fund for Nature[33] in the Russian Federation implements a programme entitled 'climate and energy', conducting a public awareness-raising campaign on advanced technology for energy use, and implements the project 'adaptation and low carbon development in the key Russian regions'. The international environmental organization Greenpeace and its Russian division are conducting public awareness-raising campaigns focused on: combating climate change,[34] highlighting the scientific aspects of climate

[26] The summary of the second assessment report is available at <http://voeikovmgo.ru/download/2014/od/od2.pdf>.
[27] <http://global-climate-change.ru/index.php/en/bulizmenenieklimata/archiveofbullet>.
[28] <http://www.igce.ru/category/informacionnye-produkty-obzory-doklady-i-dr>.
[29] <http://seu.ru/>.
[30] <http://bellona.ru/>.
[31] <http://cenef.ru/>.
[32] <http://baltfriends.ru/>.
[33] <http://wwf.ru/about/what_we_do/climate/eng>.
[34] <http://www.greenpeace.org/russia/ru/campaigns/climate/what-can-i-do/>.

change and its consequences, and ways of adapting to climate change,[35] including through promoting energy efficiency and renewable energy resources[36] and fighting forest fires.[37]

134. The ERT noted that a number of national policy documents (e.g. the CDRF,[38] the CAP on implementing the CDRF until 2020,[39] the state programme of the Russian Federation on environmental protection for 2012–2020,[40] the basis of the state policy in the field of environmental development of the Russian Federation for the period until 2030,[41] and the strategy on activities in the field of hydrometeorology and related fields for the period until 2030[42]) contain specific objectives and measures relating to targeted public awareness-raising, access to information, public involvement and working with interested social groups on climate-related priorities.

III. Summary of reviewed supplementary information under the Kyoto Protocol

A. Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

135. Supplementary information provided by the Russian Federation under Article 7, paragraph 2, of the Kyoto Protocol in its NC6 is mostly complete and transparent. The supplementary information is located in different sections of the NC6. Table 8 provides an overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol, as well as references to the NC6 chapters in which this information is provided.

136. The Russian Federation has not reported the following element of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: information on what efforts the Russian Federation is making to implement PaMs in such a way as to minimize adverse effects, including the effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The technical assessment of the information reported under Article 7, paragraph 2, of the Kyoto Protocol is contained in the relevant sections of this report. The ERT recommends that the Russian Federation include this reporting element in its next national communication.

Table 8
Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

Supplementary information	*Reference to the sixth national communication*
National registry	Page 73, chapter III
National system	Page 67, chapter III
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Page 80, chapter IV

[35] <http://www.greenpeace.org/russia/ru/campaigns/climate/>.
[36] <http://www.greenpeace.org/russia/ru/campaigns/energy/>.
[37] <http://www.greenpeace.org/russia/ru/campaigns/forests/fires/>.
[38] <http://global-climate-change.ru/index.php/en/officialdocuments/climate-doctrine>.
[39] <http://global-climate-change.ru/index.php/en/officialdocuments/lawsanddecision/107-udtvergden-plan-realiz-kd-rf-do-2020->.
[40] <http://www.sbras.ru/win/anons/1689/13/gosprogramma-2012_2020.pdf>.
[41] <http://base.garant.ru/70169264/#text>.
[42] <http://global-climate-change.ru/downl/Strategy_RGM.pdf>.

Supplementary information	*Reference to the sixth national communication*
Policies and measures in accordance with Article 2	Page 76, chapter IV
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Page 76, chapter IV
Information under Article 10	Limited information provided on page 159, chapter VII, and pages 169–170, chapter VIII
Financial resources	Not applicable

Note: Reporting on financial resources under the Kyoto Protocol is relevant for developed country Parties and other developed Parties that are included in Annex II to the Convention (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.

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

137. The Russian Federation reported the information requested in section H, "Minimization of adverse impacts in accordance with Article 3, paragraph 14", of the annex to decision 15/CMP.1 as a part of its 2014 annual submission. It has not reported, however, how it gives priority to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol. During the review, the Russian Federation provided the ERT with the additional information on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The ERT considers the reported information to be mostly complete and transparent. The ERT commends the Russian Federation for the additional information provided. The ERT noted that the Russian Federation could continue exploring and reporting on the adverse impacts of the response measures and recommends that the Party improve the completeness of reporting by including in its next annual submission information on how it gives priority to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol regarding the minimization of adverse impacts of response measures to climate change.

138. The 2014 and previous NIRs, and the additional information provided during the review, have presented several initiatives of the Russian Federation aimed at minimizing adverse impacts, including information on: the efforts made on the gradual reduction or elimination of market distortions by shifting to a market-based economy; implementation of targeted national PaMs focused on climate change mitigation; natural gas exports to developing countries to replace high-carbon fossil fuels; capacity-building in developing countries through the training and retraining of specialists in the fields of meteorology, climatology and environmental protection; and assistance to developing countries that have been affected by natural disasters.

IV. Conclusions and recommendations

139. The ERT conducted a technical review of the information reported in the NC6 of the Russian Federation according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides a good overview of the national climate policy of the Russian Federation. The information provided in the NC6 includes most elements of the supplementary information under Article 7 of the Kyoto Protocol, with the exception of

information on how it strives to implement PaMs in such a way as to minimize the adverse effects of climate change, the effects on international trade, and the social, environmental and economic impacts on other Parties, especially developing country Parties. During the review, the Russian Federation provided additional information on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention.

140. The Russian Federation's emissions for 2012 were estimated to be 31.8 per cent below the 1990 level excluding LULUCF and 50.3 per cent below including LULUCF. Emission decreases were driven by the decline of economic activity, specifically between 1990 and 1998, the restructuring of the economy from a centrally planned to a market economy and the structural changes in the primary energy supply mix.

141. In the NC6, the Russian Federation presents GHG projections for the period from 2010 to 2030. Three scenarios are included: baseline ('without measures'), 'with measures' and 'with additional measures' scenarios. The projected reductions in GHG emissions under the baseline scenario for 2020, in relation to the 1990 level, and under the 'with measures' and 'with additional measures' scenarios, are 15.0, 28.6 and 33.1 per cent, respectively.

142. Based on comparison of the target and the average annual emissions for the first commitment period (2008–2012), the Russian Federation is in a position to meet its Kyoto Protocol target for the first commitment period (limitation of GHG emissions at 100 per cent of the base year level). The Russian Federation's average annual GHG emissions (2,235,370.58 kt CO_2 eq) in the period 2008–2012 were below its Kyoto Protocol target (3,323,419.06 kt CO_2 eq) by 32.7 per cent. The Russian Federation decided not to take quantitative limitations for the second commitment period of the Kyoto Protocol. Under the Convention, the Russian Federation made a commitment to reducing its GHG emissions by 2020 to a level not higher than 75.0 per cent of the 1990 level (2,522,506.83 kt CO_2 eq or 25 per cent lower than the 1990 level), and this commitment is set out in its national policy. The projections indicate that the Russian Federation can meet its target; however, the ERT noted that at this stage, it could be early to assess whether the Russian Federation will achieve its target, as concrete measures for implementation of this commitment are still under preparation. Total emissions in 2020 are expected to be at levels that are 28.6 per cent (2,400,000 kt CO_2 eq) and 33.1 per cent (2,250,000 kt CO_2 eq) below the 1990 levels in the 'with measures' and 'with additional measures' scenarios, respectively .

143. The NC6 contains limited information on how the Russian Federation's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. The Russian Federation's target is below the Kyoto Protocol target without the use of market-based mechanisms. The Russian Federation does not need to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target, as its total GHG emissions are below the Kyoto Protocol target for the first commitment period without the use of Kyoto Protocol mechanisms.

144. The key framework climate policy is the CDRF. This overarching framework climate policy sets objectives "to strengthen and develop the information and scientific basis of the climate policy, including building-up research, engineering and technological capacity of the Russian Federation to provide the most comprehensive and accurate information on the state of climate system, effects on climate, its current and future changes and their consequences" in mitigation, adaptation and participation in international initiatives. The CDRF is the foundation of the current climate change policy of the Russian Federation and contributes to raising awareness on climate change at the highest political

level. The CAP on implementing the CDRF until 2020 was approved in April 2011 in order to fulfil the objectives of the CDRF.

145. To implement the CDRF and to promote actions aimed at reducing GHG emissions at the national level, the President of the Russian Federation has issued decree 'on reducing the greenhouse gas emissions', which established a target of reducing GHG emissions by 2020 to a level not exceeding 75.0 per cent of the 1990 emission level. To achieve the proposed target, an action plan was approved in April 2014. The action plan set 17 specific PaMs to be prepared and adopted by various governmental institutions. The progress on fulfilling the action plan by responsible ministries and state agencies is to be reported every three months to the Ministry of Economic Development.

146. The Russian Federation adopted several policies and programs targeting energy efficiency and energy savings: 'the Russian energy strategy 2030', the programme 'energy saving and energy efficiency for the period up to 2020', the draft programme 'modernization of the Russian power industry until 2020' and the programme 'energy efficiency and energy sector development'.

147. The 'Russian energy strategy 2030' estimates GHG emissions to reach a maximum of 83.0 per cent in 2013–2015, a maximum of 90.0 per cent in 2020–2022 and a maximum of 105.0 per cent in 2030 with respect to the 2005 level. The strategy aims to change the energy supply mix of the country with a view to decreasing the share of natural gas from 52.0 per cent to 45.0–47.0 per cent, increasing the share of coal from 18.0 per cent to 19.0 per cent, increasing the share of oil and oil condensate from 19.0 per cent to 22.0 per cent and increasing the share of other energy resources from 11.0 per cent to 12.0–14.0 per cent between 2005 and 2030. The improved energy intensity of GDP is envisaged to improve by 44.0 per cent in 2030 compared to the 2007 level. The new 'Russian energy strategy 2035' is already prepared and its approval by the Government is pending.

148. Although key elements of the policy framework on climate change were put in place in recent years and many implementing legislative arrangements were adopted, generally, the NC6 does not provide quantitative estimates of the impact on emission reductions of individual PaMs or groups of PaMs.

149. The Russian Federation is not a Party included in Annex II to the Convention, so it has no obligations for the provision of financial assistance to developing countries. However, it is stated in the NC6 that since 2010, the Russian Federation has obtained the status of donor country in relation to international assistance, and the ERT noted that the Russian Federation provided some resources through multilateral channels related to the implementation of the Convention.

150. The NC6 of the Russian Federation includes limited information on capacity-building and technology transfer. The capacity-building activities are mainly related to the areas of climatology and meteorology through education of students and postgraduates in higher educational institutions and postgraduate schools, as well as through conferences, seminars and exhibitions by the Federal Agency for Science and Innovation, RAS, Roshydromet and other organizations. During the review, the ERT was informed of a number of activities of state corporation Rosatom on technology transfer to and capacity-building activities for developing countries on management and operation of nuclear power plants.

151. According to the NC6, the buildings and infrastructure, coastal zones, agriculture, forestry, water resources and human health sectors could be the sectors most affected in the Russian Federation by the negative impacts of climate change. As reported by the Russian Federation in its NC6, the impacts of climate change can be positive or negative, owing to the geographical location of particular regions, the territorial spread and the size of the country.

152. Adaptation to climate change was identified as a priority of the CDRF, and a number of measures were included in the CAP on implementing the CDRF until 2020, namely, measures related to the elaboration of approaches to risk assessments and further impact assessments on various geographic regions and sectors of the economy, minimization of the impact on the population, public health and forest and wetland areas, and measures related to natural disaster management.

153. The Russian Federation is one of the leading countries in the area of climate research and systematic observation at the international level. Roshydromet and its institutes conduct systematic terrestrial, oceanographic and stratospheric observations related to climate change, including observations of the climate system through a meteorological network of 1,633 stations of the surface meteorological network, from which 139 stations are part of the GCOS (135 stations in the territory of the Russian Federation and 4 stations in the Antarctic) and 230 coastal and island hydrometeorological stations and posts, with a focus on sea surface temperature, salinity, sea ice, sea level, and observations in the Arctic and the Antarctic.

154. Within the CAP on implementing the CDRF by 2020, work is undertaken in three key areas: research on the climatic system of the Earth; climate forecasting for the short- and long-term and at the regional to global levels; and climate change impacts, risks, vulnerabilities and advantages. During 2011–2013, research activities were focused on the preparation of the second assessment report of Roshydromet on climate change and its impact on the territory of the Russian Federation. A large number of programmes and capacities were developed to deal with complex scientific and research issues, specifically in the areas of research, monitoring and forecast of the state of the environment; natural disasters and analysis and assessment of natural risks and volcanism; and physical and chemical processes in the atmosphere, thermodynamics, radiative transfer and changes in the composition of the atmosphere.

155. A number of national policy documents, for example, the CDRF, the CAP on implementing the CDRF by 2020, the state programme of the Russian Federation on environmental protection for 2012–2020, the basis of the state policy in the field of environmental development of the Russian Federation for the period until 2030, and the strategy of the hydrometeorology and related fields for the period up to 2030, include priority actions related to capacity-building, training and retraining of professionals in the areas of climate and environment, and also contain specific objectives and measures relating to targeted public awareness-raising, access to information, public involvement and work with interested social groups on climate-related priorities.

156. The Russian Federation has a comprehensive approach to education, training and awareness-raising, delivered through universities and schools and reinforced by specialized publications, social forums, international conferences and web resources. The Russian Federation has the capacity to meet the national need for education and training in climate change and to work internationally to build capacity in developing countries.

157. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol is provided by the Russian Federation in its 2013 and 2014 annual inventory submissions.

158. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of the Russian Federation's reporting under the Convention and its Kyoto Protocol. The key recommendations[43] are that the Russian Federation:

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

(a) Improve completeness of reporting in the next national communication by:

(i) Providing information on the national registry fully in accordance with the annex to decision 15/CMP.1, particularly: information on the names of the other Parties with which the Russian Federation cooperates by maintaining the national registry in a consolidated system; a list of information publicly accessible by means of the user interface to the national registry; and results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry;

(ii) Providing descriptions of any national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol contributes to the conservation of biodiversity and sustainable use of natural resources;

(iii) Providing information on how the Party strives to implement PaMs under Article 2, paragraph 3, of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties, and, in particular, those identified in Article 4, paragraphs 8 and 9, of the Convention, taking into account Article 3 of the Convention;

(iv) Excluding the emission projections related to fuel sold to ships and aircraft engaged in international transport from the national totals and providing these projections separately;

(v) Reporting projections using, to the extent possible, the same sectoral categories in the PaMs section and in the projections section of the national communication;

(vi) Providing information on the total effect of its adopted and implemented PaMs for all sectors;

(vii) Providing information on actions 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;

(viii) Including information on actions taken to support capacity-building in developing countries relating to research and systematic observation;

(b) Improve the transparency of reporting in the next national communication by:

(i) Including information on its legal and administrative framework, including governance structure, division of responsibilities, coordination mechanism, clear objectives, timelines and indicators for PaMs and their arrangements, procedures and programmes related to the Kyoto Protocol;

(ii) Including clear information on the institution with overall responsibility for climate change policymaking, including that related to the Kyoto Protocol and information on interministerial and inter-institutional decision-making processes;

(iii) Including explicit information on how PaMs modify longer-term GHG emission and removal trends;

(iv) Providing information on PaMs subdivided by gas;

(v) Adhering closely to the scenario definitions in the UNFCCC reporting guidelines on NCs;

(vi) Reporting on F-gas emissions separately (HFCs, PFCs and SF_6);

(vii) Providing information in the PaMs section and in the projections section using, to the extent possible, the same sectoral categories;

(viii) Providing a 'with measures' projection which encompasses currently implemented and adopted PaMs, if provided, a 'with additional measures' projection which encompasses planned PaMs and a 'without measures' projection excluding all PaMs implemented, adopted or planned after the year chosen as the starting point;

(ix) Presenting the total effect of the PaMs, in accordance with the 'with measures' definition, compared to a situation without such policies and measures;

(x) Reporting on whether intends to use the Kyoto Protocol mechanisms and providing, as appropriate, information on how its use of the Kyoto Protocol mechanisms is supplemental to domestic action, as well as increasing consistency of reporting;

(xi) Providing more comprehensive information on its activities, actions and programmes undertaken in fulfilment of its commitments under Article 10 of the Kyoto Protocol, including success and failure stories, and its activities for financing access by developing countries to 'hard' or 'soft' environmentally sound technologies;

(c) Improve the completeness of reporting by including in its next annual submission information on how it gives priority to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol regarding the minimization of adverse impacts of response measures to climate change.

V. Questions of implementation

159. During the review, the ERT assessed the NC6, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol and reviewed 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 reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

Annex

Documents and information used during the review

A. Reference documents

"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 national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories". 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". Decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>.

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

"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 23/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=20>.

FCCC/SBI/2011/INF.1. Compilation and synthesis of fifth national communications. Executive summary. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01.pdf>.

FCCC/SBI/2011/INF.1/Add.1. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Policies, measures, and past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a01.pdf>.

FCCC/SBI/2011/INF.1/Add.2. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a02.pdf>.

FCCC/SBI/2011/INF.2. Compilation and synthesis of supplementary information incorporated in fifth national communications submitted in accordance with Article 7, paragraph 2, of the Kyoto Protocol. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf02.pdf>.

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

FCCC/IRR/2007/RUS. Report of the review of the initial report of the Russian Federation. Available at <http://unfccc.int/resource/docs/2007/irr/rus.pdf>.

FCCC/IDR.5/RUS. Report of the in-depth review of the fifth national communication of the Russian Federation. Available at <http://unfccc.int/resource/docs/2011/idr/rus05.pdf>.

Sixth national communication of the Russian Federation. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/6nc_rus_final.pdf>.

2013 GHG inventory submission of the Russian Federation. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php>.

2014 GHG inventory submission of the Russian Federation. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8108.php>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Alexander Nakhutin (Institute of Global Climate and Ecology), Mr. Mikhail Digan (Ministry of Energy), Ms. Anna Dronova (Ministry of Natural Resources and Environment), Ms. Dinara Gershinkova (Office of the Special Envoy for Climate of the President of the Russian Federation) and Ms. Tatiana Moskaleva (Roshydromet), including additional material on updated policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in the Russian Federation. The following documents[1] were also provided by the Russian Federation:

Zamolodchikov, V.I. Grabovskii, G.N. Korovin, M.L. Gitarskii, V.G. Blinov, V.V. Dmitriev, W.A. Kurz. 2013. Carbon budget of managed forests *in the Russian Federation in 1990–2050:* p*ost*-evaluation and forecasting, [ISSN 1068-3739, Russian Meteorology and Hydrology, 2013, Vol. 38, No. 10, pp. 701–714. Allerton Press, Inc., 2013. Original Russian Text Meteorologiya i Gidrologiya, 2013, No. 10, pp. 73–92.]

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IFC Projects Database, *Russia Residential Energy Efficiency Program, Summary of Proposed Investment.* Available at: <http://ifcextapps.ifc.org/ifcext/spiwebsite1.nsf/78e3b305216fcdba85257a8b0075079d/f04a726ea93fa90b85257801007593d9?opendocument>.

Министерство природных ресурсов и экологии Российской Федерации, *Доклад о выполнении в 2012 году комплексного плана реализации Климатической доктрины Российской Федерации на период до 2020 года*. Опубликовано: 19 Ноября 2013. Available at <http://www.mnr.gov.ru/regulatory/detail.php?ID=131748>.

Министерство природных ресурсов и экологии Российской Федерации, *Доклад о ходе реализации в 2013 году комплексного плана реализации Климатической доктрины Российской Федерации на период до 2020 года*. Опубликовано: 23 Апреля 2014. Available at <http://www.mnr.gov.ru/regulatory/detail.php?ID=134236>.

[1] Reproduced as received from the Party.

Министерство природных ресурсов и экологии Российской Федерации, *Ежегодный доклад о состоянии и использовании лесов Российской Федерации за 2011 год*. Available at <http://www.mnr.gov.ru/upload/iblock/780/lesarf2011.pdf>.

Министерство природных ресурсов и экологии Российской Федерации, *Ежегодный доклад о состоянии и использовании лесов Российской Федерации за 2012 г*. Available at < http://www.mnr.gov.ru/regulatory/detail.php?ID=131589>.

Министерство энергетики Российской Федерации. *Основные положения проекта энергетической стратегии России на период до 2035 года*. Опубликовано: 23.01.2014. Available at <http://minenergo.gov.ru/documents/razrabotka/17481.html>.

Администрация Президента Российской Федерации. *Нормативно-правовые документы об организации Межведомственной рабочей группы при Администрации Президента Российской Федерации по вопросам, связанным с изменением климата и обеспечением устойчивого развития: (1) Распоряжение от 13 декабря 2012 года №563-рп «О Межведомственной рабочей группе при Администрации Президента Российской Федерации по вопросам, связанным с изменением климата и обеспечением устойчивого развития»; (2) Положение о Межведомственной рабочей группе; (3) Состав Межведомственной рабочей группы (по состоянию на 31.03.2014)*. Available at <http://state.kremlin.ru/administration/group>.

Правительство Российской Федерации, *Распоряжение от 17 ноября 2008 г. N 1662-р "Концепция долгосрочного социально-экономического развития Российской Федерации на период до 2020 года".* Available at <http://economy.gov.ru/minec/activity/sections/fcp/rasp_2008_N1662_red_08.08.2009>.

Правительство Российской Федерации, *Распоряжение от 13 ноября 2009 г. № 1715-р " Энергетическая стратегия России на период до 2030 года".* Available at <http://minenergo.gov.ru/aboutminen/energostrategy>.

Правительство Российской Федерации, *Распоряжение от 17 декабря 2009 г. №861-рп, "О Климатической доктрине Российской Федерации"*. Available at <http://www.meteorf.ru/documents/9/68/full/>.

Правительство Российской Федерации, *Распоряжение от 25 апреля 2011 г. №730-р, "Об утверждение комплексного плана реализации Климатической доктрины Российской Федерации на период до 2020 года"*. Available at <http://www.ncsf.ru/uploads/userfiles/files/rasporyajenie730.pdf>.

Администрация Президента Российской Федерации, *Указ Президента Российской Федерации от 30 сентября 2013 г. № 752, "О сокращении выбросов парниковых газов"*. Available at <http://graph.document.kremlin.ru/page.aspx?1;3587363>.

Правительство Российской Федерации, *Распоряжение от 2 апреля 2014 г. № 504-р, План мероприятий по обеспечению к 2020 году сокращения объёма выбросов парниковых газов до уровня не более 75 процентов объёма указанных выбросов в 1990 году*. Available at <http://government.ru/media/files/41d4d0082f8b65aa993d.pdf>.

Правительство Российской Федерации, *Распоряжение от 2 июля 2014 г. № 1214-р, Об утверждении плана реализации в 2014 году и в плановый период 2015-2016 годов государственной программы Российской Федерации "Охрана окружающей среды" на 2012-2020 годы*. Available at <http://cdnimg.rg.ru/pril/99/20/33/1214.pdf>.

Федеральная служба по гидрометеорологии и мониторингу окружающей среды (Росгидромет), *Второй оценочный доклад Росгидромета об изменениях климата и их последствиях на территории Российской Федерации. Общее резюме*. Научно-координационный комитет: Руководитель Росгидромета А. В. Фролов (председатель), В. Г. Блинов (заместитель председателя), Г. С. Голицын, В. П.

Дымников, Ю. А. Израэль, В. М. Катцов, В. М. Котляков, В. И. Осипов, С. М. Семенов. Москва, 2014. 61 стр.