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**Report of the centralized in-depth review of  
the fourth national communication of the Russian Federation**

According to decision 4/CP.8, Parties included in Annex I to the Convention are requested to submit to the secretariat, in accordance with Article 12, paragraphs 1 and 2, of the Convention, a fourth national communication by 1 January 2006. This report presents the results of the in-depth review of the fourth national communication of the Russian Federation conducted by an expert review team in accordance with relevant provisions of the Convention and Article 8 of the Kyoto Protocol.

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## I. Introduction and summary

### A. Introduction

1. The Russian Federation has been a Party to the Convention since 1994 and to its Kyoto Protocol since 2004. Under the Kyoto Protocol, the Russian Federation committed itself to keeping its greenhouse gas (GHG) emissions at the base year level during the first commitment period from 2008 to 2012.

2. This report covers the centralized in-depth review (IDR) of the fourth national communication (NC4) of the Russian Federation, coordinated by the UNFCCC secretariat, in accordance with decision 7/CP.11. The review took place from 11 to 16 May 2009 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Amrita Narayan Achanta (India); Mr. Matjaz Cesen (Slovenia); Mr. Gebru J. Endalew (Ethiopia); Mr. Eric Debrabanter (Luxembourg); Ms. Svetlana Dolgikh (Kazakhstan); Ms. Agnieszka Janowska (European Community); Ms. Diana Harutyunyan (Armenia); Ms. Asta Mikalauskiene (Lithuania); Ms. Valia Peeva (Energy Charter); and Mr. Janis Rekis (Latvia). Ms. Achanta and Ms. Peeva were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene (UNFCCC secretariat).

3. During the IDR, the expert review team (ERT) examined each part of the NC4. The ERT also evaluated the information contained in the Russian Federation's report demonstrating progress (RDP) in achieving its commitments under the Kyoto Protocol, and the supplementary information provided by the Russian Federation under Article 7, paragraph 2, of the Kyoto Protocol.

4. In accordance with the guidelines for review under Article 8 of the Kyoto Protocol (decision 22/CMP.1), a draft version of this report was communicated to the Government of the Russian Federation, which provided comments that were considered and incorporated, as appropriate, in this final version of the report.

### B. Summary

5. The ERT noted that the Russian Federation's NC4 complies broadly 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). As required by decisions 22/CP.7 and 25/CP.8, the RDP provides information on the progress made by the Party in achieving its commitments under the Kyoto Protocol. Supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol<sup>1</sup> is provided in both the NC4 and the RDP.

#### 1. Completeness

6. The ERT noted that the NC4 covers all sections required by the UNFCCC reporting guidelines. The ERT also noted that the Russian Federation's RDP contains most of the parts stipulated by decisions 22/CP.7 and 25/CP.8, except for an assessment of how domestic measures will contribute to the Party's meeting its commitments under Article 3, and a description of the activities, actions and programmes undertaken by the Party to fulfil its commitments under Articles 10 and 11. Furthermore, the ERT noted that the Russian Federation has provided all the supplementary information required under Article 7, paragraph 2, except for two reporting elements (see chapter III B below).

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<sup>1</sup> Decision 15/CMP.1, annex, chapter II.

## 2. Timeliness

7. The NC4 was submitted on 12 October 2006, and a revised version was submitted on 2 November 2006. The RDP was submitted on 13 February 2007. Decision 4/CP.8 requested Parties to submit their NC4 by 1 January 2006; decision 22/CP.7 set the same date for Parties to submit their RDP.

## 3. Transparency

8. The ERT acknowledged that the Russian Federation's NC4 is well structured and concise. The NC4 provides information on all aspects of implementation. The ERT noted that the structure of the NC4 follows the outline contained in the annex to the UNFCCC reporting guidelines. In the course of the review, the ERT formulated a number of recommendations that could help the Russian Federation to further increase the transparency of its reporting, such as a recommendation to provide information on how the Russian Federation believes all its policies and measures (PaMs) are modifying longer-term trends in anthropogenic GHG emissions and removals. The ERT noted that the information contained in the NC4 is generally consistent with that contained in the RDP.

# II. Technical assessment of the reviewed elements

## A. National circumstances relevant to greenhouse gas emissions and removals

9. In its NC4, the Russian Federation has provided a description of its national circumstances, how these national circumstances affect GHG emissions and removals in the Russian Federation, and how national circumstances and changes in national circumstances affect GHG emissions and removals over time. The ERT noted that the main drivers of emission trends in the Russian Federation include overall economic activity, changes in primary energy use and efforts made to increase energy efficiency.

10. The process of economic transition in the Russian Federation was accompanied by a sharp decline in its gross domestic product (GDP) in the 1990s. Since 1998 the Russian Federation has experienced strong economic growth. GDP in 2006 was 3.3 per cent lower than that in 1990, yet GHG emissions without land use, land-use change and forestry (LULUCF) in the period 1990–2006 decreased by 33.9 per cent. In the period 1990–1998, GHG emissions decreased almost in parallel with the economic decline; in the period 1998–2006, GDP growth was accompanied by a relatively slower increase in the level of GHG emissions, which was 9.9 per cent higher in 2006 than in 1998. The differences between GDP and the GHG emission trends are mainly driven by: shifts in the structure of the economy (particularly of non-energy intensive industries); shifts in the primary energy supply (the share of oil and coal has decreased and the share of natural gas and nuclear energy has increased); a decline in activities in the agriculture and transport sectors; the decrease in population (by 3.9 per cent); and the increase in energy efficiency. These trends resulted in a 31.9 per cent decrease in the Party's carbon intensity per GDP unit in 2006 compared with that in 1990. Table 1 illustrates the national circumstances of the country by providing some indicators relevant to GHG emissions and removals.

11. In the NC4, the Russian Federation has provided a summary of information on GHG emission trends for the period 1990–2004. This information is broadly consistent with its 2006 GHG inventory submission and the most recent 2009 GHG inventory submission. The ERT noted that summary tables, including trend tables for emissions in carbon dioxide equivalent (CO<sub>2</sub> eq) (given in the common reporting format), are not provided in an annex to the NC4, but are provided in the 2009 GHG inventory submission. The ERT also noted that the data for the LULUCF sector reported in the NC4 are not consistent with data in the 2009 GHG inventory submission and show significant inter-annual variations that are not clearly explained in the NC4.

**Table 1. Indicators relevant to greenhouse gas emissions and removals for the Russian Federation**

	1990	1995	2000	2006	Change 1990–2000 (%)	Change 2000–2006 (%)	Change 1990–2006 (%)
Population (million)	148.29	148.14	146.30	142.50	-1.3	-2.6	-3.9
GDP (2000 USD billion using PPP)	1 523.63	946.46	1 025.42	1 473.50	-32.7	43.7	-3.3
TPES (Mtoe)	878.93	628.86	614.62	676.16	-30.1	10.0	-23.1
GDP per capita (2000 USD thousand using PPP)	10.27	6.39	7.01	10.34	-31.8	47.5	0.6
TPES per capita (toe)	5.93	4.25	4.20	4.75	-29.1	12.9	-19.9
GHG emissions without LULUCF (Tg CO <sub>2</sub> eq)	3 319.33	2 176.15	2 030.43	2 192.82	-38.8	8.0	-33.9
GHG emissions with LULUCF (Tg CO <sub>2</sub> eq)	3 359.57	1 850.15	2 368.01	879.41	-29.5	-62.9	-73.8
CO <sub>2</sub> emissions per capita (Mg)	16.85	10.60	10.06	11.09	-40.3	10.3	-34.2
CO <sub>2</sub> emissions per GDP unit (kg per 2000 USD using PPP)	1.64	1.66	1.43	1.07	-12.5	-25.3	-34.6
GHG emissions per capita (Mg CO <sub>2</sub> eq)	22.38	14.69	13.88	15.39	-38.0	10.9	-31.3
GHG emissions per GDP unit (kg CO <sub>2</sub> eq per 2000 USD using PPP)	2.18	2.30	1.98	1.49	-9.1	-24.8	-31.7

*Data sources:* (1) GHG emissions data: the Russian Federation's 2009 GHG inventory submission; (2) Population, GDP and TPES data: International Energy Agency, 2008.

*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.

*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.

12. Throughout the 1990s, natural gas was the most important primary energy source and increased from 42 per cent of the total primary energy supply (TPES) in 1990 to 54 per cent in 2006. Accordingly, between 1990 and 2006 the share of oil in the TPES fell from 31 to 21 per cent and that of coal fell from 21 to 16 per cent. Over that same period, the shares of the remaining energy sources changed as follows: nuclear energy increased from 4 to 6 per cent; hydropower maintained a constant share of around 2 per cent; and combustible renewables and waste had a share of over 1 per cent. The ERT noted that 65.3 per cent of electricity is produced by thermal power plants and that electricity production increased by 11.8 per cent in the period 1998–2006.

13. Total GHG emissions excluding emissions and removals from LULUCF decreased by 33.9 per cent between 1990 and 2007, and total GHG emissions including net emissions or removals from LULUCF decreased by 73.8 per cent (see table 2). This was mainly attributed to CO<sub>2</sub> emissions, which decreased by 36.8 per cent over this period. Emissions of methane (CH<sub>4</sub>) decreased by 16.4 per cent, while emissions of nitrous oxide (N<sub>2</sub>O) decreased by 53.1 per cent.

14. Most of these decreases in emissions occurred before 1998. In the period 1998–2007, GHG emissions excluding LULUCF increased by 10.8 per cent, which was underpinned by a 10.3 per cent increase in CO<sub>2</sub> emissions, a 15.9 per cent increase in CH<sub>4</sub> emissions and a 5.1 per cent increase in N<sub>2</sub>O emissions. Trends in GHG emissions including LULUCF show a significant reduction of 41.2 per cent for the period 1998–2007. The ERT noted that significant inter-annual fluctuations in net emissions and removals from the LULUCF sector may be explained by forest fires in the years 1990, 1996, 1998 and 2003. Emissions of fluorinated gases accounted for 1.6 per cent of total GHG emissions in 2007. Table 2 provides an overview of GHG emissions by sector from 1990 to 2007 (see also discussion of sectoral trends in chapter II B).

15. Activities in the transport sector have been increasing by 4–5 per cent annually since 2000. However, in the period 1990–2006, GHG emissions from this sector decreased by 39.5 per cent. Similarly, emissions from the agriculture sector decreased by 56.5 per cent over the same period. GHG emissions from the waste sector increased by 15.0 per cent in the period 1998–2007.

16. The ERT noted that 45 per cent of land in the Russian Federation is covered by forests. The Party reported that dry weather frequently causes forest fires. According to the 2009 GHG inventory submission, the LULUCF sector in the years 1998, 2000, 2001, 2005 and 2006 went from being a net sink to a net source of emissions. The ERT also noted significant inter-annual changes in net GHG emissions from the LULUCF sector, in particular between 2006 and 2007, when emissions decreased by 6,014.8 per cent. Given the significant impact of the LULUCF sector on GHG emission trends in the Russian Federation, the ERT encourages the Party to provide a more in-depth analysis of how national circumstances influence net GHG emissions from LULUCF. During the review, the Russian Federation informed the ERT that the estimates of net GHG emissions from LULUCF in 2007 are being revised. The revised estimates will take into account amendments made to the national forest statistics as a result of the responsibility for some forest land being assigned to the regional administrations.

**Table 2. Greenhouse gas emissions by sector in the Russian Federation, 1990–2007**

	GHG emissions (Tg CO <sub>2</sub> eq)						Change (%)		Shares <sup>a</sup> by sector (%)	
	1990	1995	2000	2005	2006	2007	1990–2007	2006–2007	1990	2007
1. Energy	2 707.17	1 769.26	1 661.20	1 733.31	1 790.47	1 785.68	-34.0	-0.3	81.6	81.4
A1. Energy industries	1 176.04	910.69	862.06	873.07	904.26	888.84	-24.4	-1.7	35.4	40.5
A2. Manufacturing industries and construction	217.29	106.45	115.56	120.08	121.44	114.02	-47.5	-6.1	6.5	5.2
A3. Transport	341.29	185.40	152.21	190.28	198.94	206.45	-39.5	3.8	10.3	9.4
A4.–A5. Other	547.68	234.18	194.83	164.84	169.54	171.52	-68.7	1.2	16.5	7.8
B. Fugitive emissions	424.87	332.54	336.55	385.04	396.29	404.85	-4.7	2.2	12.8	18.5
2. Industrial processes	246.75	154.12	170.19	189.28	201.20	208.07	-15.7	3.4	7.4	9.5
3. Solvent and other product use	0.56	0.51	0.52	0.53	0.53	0.54	-3.6	1.8	0.0	0.0
4. Agriculture	309.97	205.02	146.23	134.30	131.49	134.71	-56.5	2.5	9.3	6.1
5. LULUCF	40.24	-326.00	337.58	-111.98	22.21	-1 313.41	-3 363.9	-6 014.8	1.2	-59.9
6. Waste	54.87	47.25	52.29	60.40	62.20	63.82	16.3	2.6	1.7	2.9
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GHG total with LULUCF	3 359.57	1 850.15	2 368.01	2 005.84	2 208.09	879.41	-73.8	-60.2	101.2	40.1
GHG total without LULUCF	3 319.33	2 176.15	2 030.43	2 117.82	2 185.88	2 192.82	-33.9	0.3	100.0	100.0

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

*Note:* The changes in emissions and the shares 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.

<sup>a</sup> 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.

17. After assessing the information on the national circumstances and the emission trends by gas and by sector, the ERT concluded that the main GHG emission trends presented in the NC4 are similar to those presented in the Party's 2009 GHG inventory submission. The ERT encourages the Russian Federation to provide more information on how its national circumstances, in particular changes in heat demand in the residential sector, influence its GHG emission trends.

## B. Policies and measures

18. As required by the UNFCCC reporting guidelines, the Russian Federation has provided in its NC4 information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and the Kyoto Protocol. Each sector, except the waste and industrial processes sectors, has its own textual description of the principal PaMs. However, the ERT noted that the Russian Federation did not provide the following reporting elements required by the UNFCCC reporting guidelines: information on PaMs adopted to implement commitments under Article 4, paragraph 2(a) and (b), of the Convention, subdivided by gas; summary tables on PaMs by sector; a presentation of each policy or measure, including information on each of the following subject headings: the GHG affected, status of implementation, and implementing entity or entities; and information on how the Party believes some of its PaMs are modifying longer-term trends in anthropogenic GHG emissions

and removals, consistent with the objective of the Convention. Table 3 provides a summary of the reported information on the PaMs of the Russian Federation.

#### 1. Policy framework and cross-sectoral measures

19. The Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008, which was adopted in 2005, defined the responsibilities of different government bodies at the federal level. The Government of the Russian Federation has overall responsibility for the implementation of the Kyoto Protocol. The Interdepartmental Commission on Implementation of the Kyoto Protocol in the Russian Federation, established in 2005, coordinates the activities of ministries and state agencies on the implementation of the Complex Action Plan for the Implementation of the Kyoto Protocol for 2004–2008. The ERT noted that information on the financial aspects and the national allocation of funds to support climate-related activities and programmes has not been presented in the NC4.

20. The Russian Federation reports that its strategic programmes for social and economic development incorporate climate change issues and establish a good basis for the national policy to address climate change. For example, the Mid-term Social-economic Development Programme of the Russian Federation for 2003–2005 envisaged a transition to an energy-efficient development model for the Party's economy and contained economic incentives for the modernization of equipment and technologies, which would reduce GHG emissions. The Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008 was at the centre of the Party's climate change policy, as it was aimed at the organization and coordination of activities related to the implementation of the Kyoto Protocol. The action plan centred on PaMs aimed at reducing emissions and increasing removals, with responsibility for their implementation assigned to different state bodies. The action plan introduced a system of quantitative target indicators for measuring the effectiveness of PaMs. However, information on the results of achieving these quantitative targets was not provided in the NC4. In response to a request made by the ERT during the review, the Party provided additional information, indicating that the quantitative targets of the Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008 were only partially met.

21. Given that a substantial percentage of GHG emissions (81.4 per cent in 2007) in the Russian Federation were from the energy sector, the energy strategy of the Russian Federation for the period until 2020 and the federal programme for an energy-efficient economy for the period 2002–2005 and until 2010 are considered to be by far the most important elements of the Russian Federation's policy framework for climate change activities, along with the action plan noted in paragraph 20 above.

#### 2. Policies and measures in the energy sector

22. Between 1990 and 2007, GHG emissions from energy industries decreased by 33.9 per cent (921,490 Gg), mainly driven by a 23.1 per cent decrease in primary energy consumption (the decrease in TPES was 30.1 per cent in the period 1990–2000), which resulted in turn from the economic downturn during the early 1990s and the change in the primary energy supply (a reduction in the share of coal and an increase in the share of natural gas in the energy balance). The trend in GHG emissions from fuel combustion showed a notable decrease in emissions from transport (by 39.5 per cent or 134.84 Tg) and in energy use in other sectors (by 68.7 per cent or 376.16 Tg). However, in the period 2005–2007, GHG emissions from transport increased as a result of a significant increase in road transportation activities since 1999.

**Table 3. Summary of information on policies and measures**

<b>Major policies and measures</b>	<b>Examples/comments</b>
<b>Framework policies and cross-sectoral measures</b>	
Integrated climate policies	Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008 (2005)
Support of research and development	Targeted federal programme on the national technological base for 2002–2006
Other	Mid-term Social-economic Development Programme of the Russian Federation for 2003–2005 (envisaged transition to an energy-efficient development model for the Party's economy development model, with economic incentives for the modernization of equipment and technologies); Mid-term Social-economic Development Programme of the Russian Federation for 2005–2008; Energy strategy of the Russian Federation for the period until 2020 (2003)
	Federal programme on ecology and natural resources of the Russian Federation
	Presidential Decree on measures for increasing the energy and environmental efficiency of the economy of the Russian Federation (2008)
<b>Policies and measures by sector</b>	
<b>Energy</b>	
Energy sector reform	Energy strategy of the Russian Federation for the period until 2020 (2003); Decree number 526 on the reform of the power generation sector (2001)
	Measures for technological improvement and decreasing fuel consumption at power and combined heat and power plants by the power company EES Rossiya (annual emission reductions of 1.23 Mt CO <sub>2</sub> during the period 2002–2004)
	Sectoral programme for energy conservation in power generation until 2010 (20 Mt expected annual CO <sub>2</sub> emission reductions until 2010)
Renewable energy sources	Energy strategy of the Russian Federation for the period until 2020 (2003); federal programme for the development of renewable energy sources (RES) (2005) (funded by the Global Environment Facility); federal programme for an energy-efficient economy for 2007–2010 and until 2015; Priorities of the state policy for improvement of the energy efficiency in the power generation sector through employment of RES until 2020 (2009)
Energy efficiency improvements	Energy strategy of the Russian Federation for the period until 2020 (2003); federal programme for an energy-efficient economy for 2002–2005 and until 2010, with subprogrammes on energy efficiency on the demand side, and energy efficiency of the energy-producing sector (50–60 Mt annual CO <sub>2</sub> emission reductions during the period 2002–2005); federal programme on housing for 2002–2010 and its subprogramme on housing retrofit and modernization; development of small-scale energy generation and individual heat supply in the communal sector; regional energy conservation programmes (about 60 such programmes have been adopted)
Other	Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008 (2005) (increase in share of renovated municipal heating systems from 16.1 per cent in 2004 to 30 per cent in 2008)
	Gazprom's energy conservation programmes 2001–2010; Gazprom's plan of priority measures for CH <sub>4</sub> and CO <sub>2</sub> emission reductions until 2012 (the annual reductions expected are a 10 per cent reduction in CH <sub>4</sub> emissions and a 2.5 per cent reduction in CO <sub>2</sub> emissions); other measures to increase the efficiency of gas transport and decrease losses by Gazprom (emission reductions of 3 Mt CO <sub>2</sub> in the period 2001–2004 through reconstruction of pump stations)
<b>Transport</b>	Federal programme for modernization of the transport system of the Russian Federation; sectoral programme for energy conservation in transport in the Russian Federation 1998–2005; development strategy on railway transport in the Russian Federation until 2030 (2008); transport strategy of the Russian Federation until 2030 (2008)
<b>Industrial processes</b>	Energy strategy of the Russian Federation for the period until 2020 (2003); strategy for the development of metallurgy in the Russian Federation
<b>Agriculture</b>	Federal programme for increasing the productivity of Russian soils
<b>Forestry</b>	Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008 (2005); the Russian Federation Forestry Code; methodological recommendations for the calculation of the carbon balance in Russian forests for 1990–2012 (2005); federal programme for the protection of forests from fire in the period 1999–2005
<b>Waste management</b>	Federal programme on ecology and natural resources of the Russian Federation



23. **Energy supply.** The Russian Federation has introduced specific programmes to decrease the energy intensity of the economy that have a considerable mitigation effect. The federal programme for an energy-efficient economy for 2002–2005 and until 2010 is an overarching programme which includes subprogrammes, such as energy efficiency on the demand side and energy efficiency of the energy-producing sector. The implementation of the programme has led to estimated emission reductions of 50–60 Mt CO<sub>2</sub> annually during the period 2002–2005. The implementation of the programme was not extended beyond 2006 and a draft of the programme for the period 2007–2010 and until 2015 was not approved. However, a Presidential Decree on measures for increasing the energy and environmental efficiency of the Russian economy was issued in 2008, setting an objective of at least a 40 per cent decrease in the energy intensity of the economy in 2020 compared with that in 2007.

24. The sectoral programme for energy conservation in power generation until 2010 is expected to reduce CO<sub>2</sub> emissions by 20 Mt annually until 2010. Measures for technological improvement and decreasing fuel consumption at power and combined heat and power plants by the power company EES Rossiya led to annual emission reductions of 1.23 Mt CO<sub>2</sub> in the period 2002–2004. Gazprom's energy conservation programmes include measures targeting the entire production chain from gas extraction to transportation, storage and distribution. For the period 2001–2010, the energy conservation programme identified the potential for annual savings of 13.5–14 billion m<sup>3</sup> natural gas and about 3 billion kWh electricity. Gazprom has identified priority measures for reducing CH<sub>4</sub> and CO<sub>2</sub> emissions until 2012, with an expected 10 per cent reduction in CH<sub>4</sub> emissions and a 2.5 per cent reduction in CO<sub>2</sub> emissions annually.

25. The share of renewable energy sources (RES) in the TPES of the Russian Federation is low (0.1 per cent in 2004 without wood and hydropower) compared with that in other countries, but this share has been slowly increasing since 2000. Following the strategic directions of the energy strategy and the federal programme for an energy-efficient economy, the Russian Federation has developed a number of PaMs to explore the existing potential for RES in the country and to increase the share of RES in the TPES to 0.22–0.30 per cent. In 2005, the federal programme for the development of renewable energy sources was launched with funding from the Global Environment Facility. In response to a request made by the ERT, the Russian Federation provided additional information on a new policy document entitled "Priorities of the state policy for improvement of the energy efficiency in the power generation sector through employment of renewable energy sources until 2020", which was adopted in 2009.

26. **Energy demand.** Under the subprogramme for energy efficiency on the demand side, 8–9 Mt CO<sub>2</sub> was avoided annually in the period 2002–2005. The federal programme for housing for 2002–2010 includes the subprogramme for housing retrofit and modernization, which envisages implementation of energy efficiency measures and introduction of small-scale renewable energy generation in the residential and services sectors. The ERT noted that according to the NC4, 60 regional energy conservation programmes have been adopted.

27. **Transport.** The Russian Federation has introduced some PaMs for the mitigation of climate change in the transport sector, mainly in the context of the sectoral programme for energy conservation in the Russian transport sector for the period 1998–2005. As a result of the implemented measures, a 9.5 per cent reduction in fuel and energy demand was reported in the sector. In 2005, technical requirements limiting emissions of pollutants from motor vehicles were introduced, including indicators for the reduction of GHG emissions (EURO 2–EURO 5 emission standards).

28. The ERT noted the progress that the Russian Federation has made in developing PaMs to reduce energy-related GHG emissions in selected priority areas. The ERT also noted the importance attached to the programmes in the energy sector and the results of these programmes. The ERT encourages the Russian Federation, in its next national communication, to improve the structure of the information

reported on PaMs in the energy sector and to report the results of the monitoring and evaluation of the progress made in implementing all PaMs over time.

### 3. Policies and measures in other sectors

29. Between 1990 and 2007, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased by 33.5 per cent (205,012.77 Gg), mainly driven by the decrease in emissions from the industrial processes (–15.7 per cent) and agriculture sectors (–56.4 per cent). The decrease was partly offset by a 16.3 per cent increase in emissions from the waste sector. The NC4 provides limited information on PaMs in the non-energy sectors and most of the measures mentioned are related to energy efficiency improvements. The GHG reduction effects of individual PaMs are not provided.

30. **Industrial processes.** In the period 1990–2007, GHG emissions from industrial processes decreased by 15.7 per cent. The major sources of GHG emissions in this sector are metal production (53.9 per cent), mineral products (26.2 per cent) and the chemical industry (11.6 per cent). Significant reductions in emissions from industrial processes resulted from energy efficiency measures, which were included in the energy strategy of the Russian Federation until 2020. The ERT noted that no specific information is provided in the NC4 about programmes aimed at reducing emissions from industrial processes. For its part, the RDP mentions the strategy for the development of metallurgy in the Russian Federation, which envisages cost reductions in metal production of 15–18 per cent by 2010 due to technological changes. The RDP also mentions production trends in the chemical industry without specifying any PaMs.

31. **Agriculture.** During the period 1990–2007, GHG emissions from the agriculture sector decreased by 56.5 per cent. The major sources of GHG emissions in this sector are emissions from soils (54.3 per cent), enteric fermentation by livestock (28.1 per cent) and manure management (16.9 per cent). The main policy implemented in this sector is the federal programme for increasing the productivity of Russian soils. The NC4 does not elaborate on the activities identified in this programme.

32. **Forestry.** As mentioned in the NC4, the Russian Federation forecasts an annual increase in CO<sub>2</sub> emissions from the forestry sector of 3.4–4.3 per cent until 2020. Measures in place in the LULUCF sector are defined in several documents, including: the federal programme for the protection of forests from fire in the period 1999–2005; the Complex Action Plan for the Implementation of the Kyoto Protocol in the Russian Federation for 2004–2008; the Russian Federation Forestry Code; and methodological recommendations for the calculation of the carbon balance in Russian forests for 1990–2012 (adopted in 2005). The NC4 provides no further description of the objectives of and activities included in these programmes and plans.

33. **Waste.** Emissions from the waste sector in the period 1990–2007 increased by 16.3 per cent. The major source of GHG emissions in this sector is solid waste disposal on land (58.9 per cent), followed by wastewater handling (41.1 per cent). The key driver of this rise in emissions in the waste sector was the fast economic growth in the Russian Federation in the period 1998–2007 and related changes in lifestyle. As mentioned in the NC4, it is expected that CH<sub>4</sub> emissions from the waste sector will decrease by more than 1 per cent annually until 2020. However, the ERT noted that the NC4 does not provide a separate section on PaMs in the waste sector and recommends that the Russian Federation include such a section in its next national communication.

34. The Russian Federation provided limited information on PaMs in the non-energy sectors, in particular on those in the industrial processes and waste sectors. In response to a request made by the ERT during the review, the Russian Federation provided additional information on some PaMs, such as the Ecology Protection Programme for 2009–2013. This programme aims to minimize negative human

impacts on the environment and includes 483 measures with a cost of implementation of 58.52 million Russian roubles. The ERT recommends that the Russian Federation provide more comprehensive information on the PaMs in the non-energy sectors in its next national communication.

### C. Projections and the total effect of policies and measures

#### 1. Projections

35. The GHG emission projections provided by the Russian Federation in the NC4 include two ‘with measures’ scenarios until 2020, which are presented relative to actual inventory data for all sectors in aggregate excluding LULUCF. Projections are presented by gas for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. Projections of perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF<sub>6</sub>) are presented in aggregate. The NC4 also provides projections for CO<sub>2</sub> emissions for the years 2005, 2010, 2015 and 2020 for the following sectors: power, iron and steel, wood and wood products, and oil and gas exploration. In addition, projections are provided in an aggregated format for a national total, using global warming potential (GWP) values.

36. The ERT noted that the Russian Federation did not provide the following reporting elements required by the UNFCCC reporting guidelines: projections for the LULUCF sector; projections presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the PaMs section; projections for PFCs, HFCs and SF<sub>6</sub> (treating PFCs and HFCs collectively in each case); projections in an aggregated format for each sector, using GWP values; and emission projections related to fuel sold to ships and aircraft engaged in international transport reported separately and not included in the totals. Table 4 and the figure below provide a summary of GHG emission projections for the Russian Federation.

**Table 4. Summary of greenhouse gas emission projections for the Russian Federation**

	Greenhouse gas emissions (Tg CO <sub>2</sub> eq per year)	Changes in relation to base year level (%)
Inventory data 1990 <sup>a</sup>	3 319.33	-0.1
Inventory data 2007 <sup>a</sup>	2 192.82	-34
Kyoto Protocol base year <sup>b</sup>	3 323.42	-
Kyoto Protocol target <sup>b</sup>	3 323.42	100
‘With measures’ projections for 2010 <sup>c</sup>	2 393.77	-28
‘With additional measures’ projections for 2010	NA	NA

*Abbreviation:* NA = not available.

<sup>a</sup> *Data source:* The Russian Federation’s 2009 greenhouse gas (GHG) inventory submission; the emissions are without land use, land-use change and forestry (LULUCF).

<sup>b</sup> Based on the initial review report contained in document FCCC/IRR/2007/RUS.

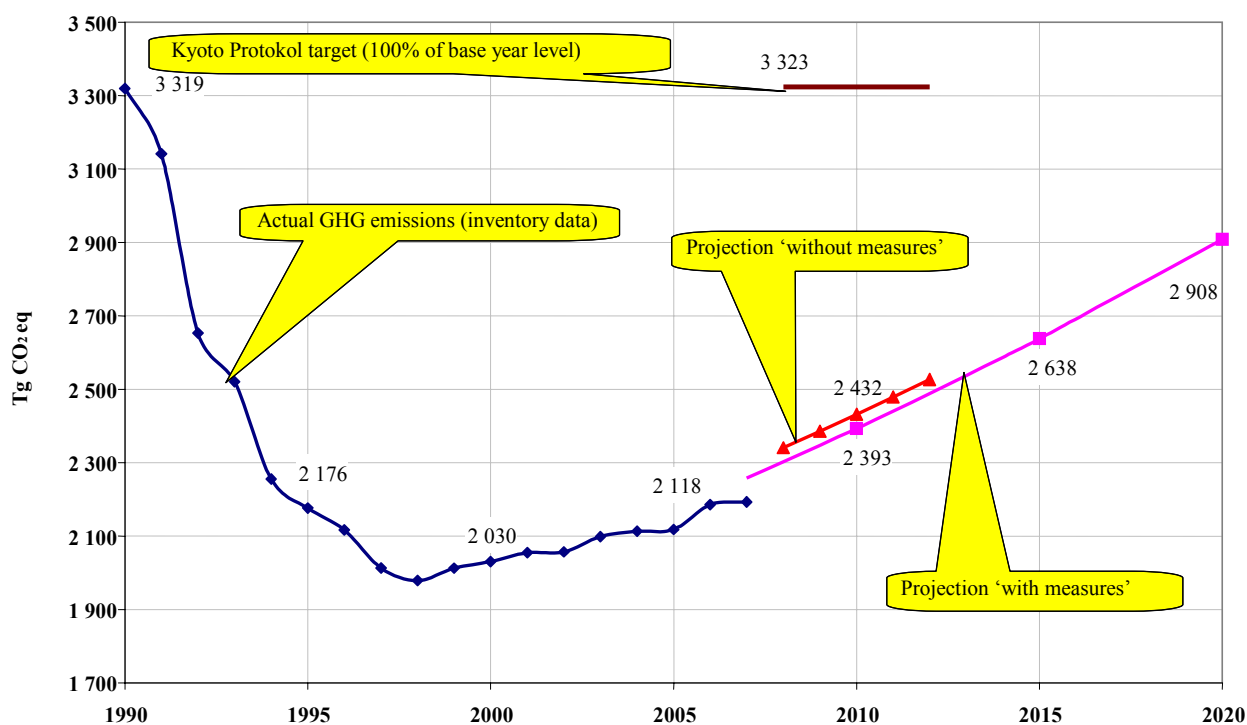
<sup>c</sup> *Data source:* Updated projections provided by the Russian Federation during the in-depth review; the projections are for GHG emissions without LULUCF.

37. The NC4 provides historical and projected levels of several energy indicators at the macroeconomic level, such as GDP, energy intensity and energy consumption for the two ‘with measures’ scenarios. The projections of energy-related CO<sub>2</sub> emissions were prepared following a top-down approach using different assumptions for GDP growth rates, energy intensity improvements and changes in the carbon intensity of energy consumption over a 40-year time horizon. The top-down approach gives little information about the interim results, such as the energy supply mix.

38. In response to a request made by the ERT during the review, the Russian Federation provided additional information on a new energy-modelling framework for GHG emission projections that uses the TIMES model. The methodological approaches of the model used in the NC4 and the model provided during the review differ, as the TIMES model provides disaggregated projections for each sector

(30 scenarios of CO<sub>2</sub> emissions in the energy sector until 2030 are provided), whereas the model used in the NC4 provided rather aggregated projections. The Russian Federation also provided updated projections for the baseline scenario (for CO<sub>2</sub> emissions only) and for the ‘innovation’ scenario (for all GHG emissions). The ‘innovation’ scenario projects higher levels of GHG emissions than those identified in the NC4: 2,393 Tg CO<sub>2</sub> eq in 2010 (2,329 Tg CO<sub>2</sub> eq reported in the NC4); 2,638 Tg CO<sub>2</sub> eq in 2015 (2,563 Tg CO<sub>2</sub> eq in the NC4); and 2,908 Tg CO<sub>2</sub> eq in 2020 (2,823 Tg CO<sub>2</sub> eq in the NC4) (see the figure below).

### Greenhouse gas emission projections



*Data sources:* (1) Data for the years 1990–2007: the Russian Federation’s 2009 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry (LULUCF). (2) Data for the years 2007–2020: updated projections for the ‘with measures’ innovation scenario provided by the Russian Federation during the in-depth review, the Russian Federation’s fourth national communication and report demonstrating progress; the emissions are without LULUCF.  
*Note:* The projection ‘without measures’ was calculated by adding the expected emission reductions in CO<sub>2</sub> eq for specific PaMs to the projection ‘with measures’; the emissions are without LULUCF.

39. The Russian Federation has not provided ‘with additional measures’ and ‘without measures’ scenarios. For the sake of transparency, the ERT has calculated the projection ‘without measures’ by adding the aggregated effect of a number of specific PaMs provided in the NC4 (the effects of only some PaMs have been provided, see paragraph 44 below) to the projection ‘with measures’ provided in the NC4. The ERT estimates that the GHG emission projection ‘without measures’ would be 2,432 Tg CO<sub>2</sub> eq in 2010, which is 26.8 per cent below the Kyoto target.

40. According to the projection ‘with measures’ presented by the Russian Federation in the NC4 and in response to a request made by the ERT during the review, the Party will meet its Kyoto target (100 per cent of the base year level). The level of GHG emissions in the years 2010, 2015 and 2020 in absolute values will be 2,393, 2,638 and 2,908 Tg CO<sub>2</sub> eq, which is below the Kyoto target by 28.0, 20.6 and 12.5 per cent, respectively.

41. The ERT recommends that the Russian Federation provide the following elements in its next national communication: projections on a sectoral basis, to the extent possible, using the same sectoral

categories used in the PaMs section; projections for PFCs, HFCs and SF<sub>6</sub> (treating PFCs and HFCs collectively in each case); projections in an aggregated format for each sector, using GWP values; projections for fuels sold for use in ships and aircraft engaged in international transport reported separately and not included in the totals; and more detailed information on the methodologies and assumptions used for emission projections in the non-energy sectors. The ERT suggests that the Russian Federation improve the transparency of its reporting of GHG projections, by reporting them in a tabular format by sector and by gas and by reporting projections for the ‘without measures’ and ‘with additional measures’ scenarios in addition to the ‘with measures’ scenario.

## 2. Total effect of policies and measures

42. In the NC4, the Russian Federation presents the estimated and expected effects for several implemented and adopted PaMs for the energy sector only, in accordance with the ‘with measures’ definition, compared with a situation without such PaMs, presented in terms of GHG emissions avoided (on a CO<sub>2</sub> eq basis), in 2005 and 2010 (see table 3). It also presents relevant information on economic indicators and activities (such as the trends and projections for fuel combustion or production) for each sector for the years 1990–2020.

43. The ERT noted that the Russian Federation did not provide the following reporting elements required by the UNFCCC reporting guidelines: an estimate of the total effect of its PaMs, in accordance with the ‘with measures’ definition, compared with a situation without such PaMs, presented in terms of GHG emissions avoided or sequestered, by gas (on a CO<sub>2</sub> eq basis) in 1995 and 2000. Table 5 provides an overview of the effect of PaMs in the energy sector as reported by the Russian Federation.

**Table 5. Projected effects of planned, implemented and adopted policies and measures in 2010**

Sector	Effect of implemented and adopted measures (Tg CO <sub>2</sub> eq)	Relative value (% of base year emissions)	Effect of planned measures (Tg CO <sub>2</sub> eq)	Relative value (% of base year emissions)
Energy				
Conservation in power generation	20.00	0.6	NA	NA
Natural gas transportation (CH <sub>4</sub> emissions avoided)	9.38	0.3	NA	NA
Natural gas transportation (CO <sub>2</sub> emissions avoided)	2.46	0.1	NA	NA
<b>Total</b>	<b>31.84</b>	<b>1.0</b>	<b>NA</b>	<b>NA</b>

*Data source:* The Russian Federation’s fourth national communication and report demonstrating progress.

*Abbreviation:* NA = not available.

*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.

44. The NC4 and the RDP contain estimates of GHG emission reduction effects of a limited number of PaMs in the energy sector. The envisaged effects of measures provided in the sectoral programme for energy conservation in power generation until 2010 are estimated to be an emission reduction of 20 Tg CO<sub>2</sub> eq in 2010; the envisaged effects of measures to avoid CH<sub>4</sub> emissions resulting from natural gas transportation, operations and leakage are estimated to be an emission reduction of 75.0 Tg CO<sub>2</sub> eq in the period 2005–2012 (or 9.4 CO<sub>2</sub> eq per year); and the envisaged effects of measures to reduce CO<sub>2</sub> emissions from fuel combustion by Gazprom, which operates natural gas networks in the Russian Federation, are estimated to be an emission reduction of 19.7 CO<sub>2</sub> eq in the period 2005–2012 (or 2.5 CO<sub>2</sub> eq per year) owing to energy efficiency and modernization measures implemented in the systems of the natural gas pipelines. In total these measures are expected to reduce emissions by 31.84 Tg CO<sub>2</sub> eq in 2010 or by 1.0 per cent compared with emissions in the base year.

45. The ERT encourages the Russian Federation to include in its next national communication a quantitative estimate of the impacts of individual policies or measures or collections of PaMs for both the energy sector and the non-energy sectors, as stipulated by the UNFCCC reporting guidelines. The next national communication should include an estimate of the total effect of the country's PaMs, in accordance with the 'with measures' definition, compared with a situation without such PaMs, presented in terms of GHG emissions avoided or sequestered, by gas (on a CO<sub>2</sub> eq basis) in 1995 and 2000. In order to improve the transparency and completeness of reporting, the ERT encourages the Russian Federation to provide an estimate of the total effect of its PaMs in terms of GHG emissions avoided, by gas and by sector (on a CO<sub>2</sub> eq basis) for the years 2005, 2010, 2015 and 2020 in tabular format. This includes presenting information by sector, subdivided by gas, and identifying the type of instrument, status of the policy or measure, and the implementing entity, as indicated in the UNFCCC reporting guidelines.

#### D. Vulnerability assessment, climate change impacts and adaptation measures

46. The NC4 reported limited information on progress made by the Russian Federation since the submission of the NC3 related to vulnerability assessment, climate change impacts and adaptation measures. Despite a corresponding recommendation made during the review of the NC3, the NC4 does not identify any adaptation programmes or strategic approaches regarding adaptation.

47. The ERT noted that the Russian Federation did not provide clear and detailed information on the actions taken to implement adaptation options identified in previous national communications. Table 6 summarizes the information on vulnerability and adaptation to climate change presented in the NC4.

**Table 6. Summary of information on vulnerability and adaptation to climate change**

Vulnerable area	Examples/comments/adaptation measures reported
Agriculture and food security	<p><b>Vulnerability:</b> Increase in yield variability of winter crops in western regions; shift in pest distribution; increasing aridity in some central and eastern regions; increase in the frequency of droughts; displacement of boundaries of vegetation zones</p> <p><b>Adaptation:</b> Making a change to agricultural species that are more suitable for warmer conditions; reserving financial resources to extend areas of arable land; extending areas of irrigated lands</p>
Forests	<p><b>Vulnerability:</b> Positive impacts on biomass growth are expected, but negative impacts from more frequent droughts are also expected; changes in soil conditions; deterioration of permafrost areas; increase in the probability of fires; changes in the composition of tree species</p> <p><b>Adaptation:</b> Development and implementation of complex programmes to reduce climate change impacts</p>
Infrastructure in permafrost regions	<p><b>Vulnerability:</b> Various changes and generally negative impacts are expected in the permafrost regions, including an impact on gas/oil transportation lines, roads and buildings</p> <p><b>Adaptation:</b> Improvement of monitoring systems in the permafrost regions to be prepared in order to adapt to climate change</p>
Water resources	<p><b>Vulnerability:</b> Increase in run-off in winter and summer, excluding the south-western regions; increase in flood risk</p> <p><b>Adaptation:</b> Implementation of flood protection; regulation of run-off and redistribution of water resources; improvement of water management, including water-saving technologies; introduction of insurance against natural disasters</p>

48. According to the NC4, water resources, forestry and infrastructure in the permafrost regions of the Russian Federation may be the most affected by the negative impacts of climate change. The NC4 states that increased precipitation has already affected water resources, such as in the Volga river and the Caspian Sea. With an expected increase in temperature and precipitation, the annual water flow could increase by 30–45 per cent in the Volga river basin, 25–40 per cent in the Dnieper river basin and 15–20 per cent in the Enisei river basin.

49. According to the forecast in the NC4, some regions of Siberia may suffer from dryness, and forests may be affected by increasing temperatures and changing soil conditions in permafrost regions.

These impacts may lead to instability in forests, including changes in the composition of tree species and an increase in forest fires. The Russian Federation expects the border of the permafrost zone to shift northwards by 150–200 km by the end of this century as result of an increase in air temperature. This will have negative impacts on the infrastructure, which was built under permafrost conditions.

50. It is expected that climate change will have a positive impact on the agriculture sector. An increase in crop yields is currently being observed in most regions of the Russian Federation and this is expected to continue. The Russian Federation reported in the NC4 that the duration of the heating period is expected to decrease by between 5 and 20 per cent by 2050. This will have a positive socio-economic impact as a result of fuel savings.

51. The NC4 does not report on any potential impacts on human health, although according to the previous IDR it is believed that vulnerabilities do exist with regard to human health. Bearing in mind the importance of biodiversity in the Russian Federation, the ERT noted that the NC4 does not provide any information on the vulnerability of ecosystems.

52. Noting that adaptation options are identified, but any strategic documents on adaptation are reported as developed and adopted in the NC4, the ERT recommends that the Russian Federation provide in its future national communications more detailed information on planned and implemented adaptation measures.

#### **E. Research and systematic observation**

53. The Russian Federation has provided detailed information on its actions relating to research and systematic observation, and addressed both domestic and international activities, including the World Climate Programme, the World Climate Research Programme (WCRP), the Global Climate Observing System (GCOS), the Global Ocean Observing System, the Global Terrestrial Observing System, the Global Atmosphere Watch, the Global Earth Observation System of Systems and the Intergovernmental Panel on Climate Change. Furthermore, the NC4 includes an annex with information on GCOS activities. However, the ERT noted that the Russian Federation did not provide clear information on the actions taken to support related capacity-building in developing countries.

54. The ERT noted that the Russian Federation has been involved in research for a long time and has actively engaged in climate change science since the mid-twentieth century. Based on the information provided in the NC4, the ERT believes that the Russian Federation is well advanced in research and systematic observation and plays an important role at the international level.

55. The ERT also noted that the Russian Federation reported on its active participation in a number of international research programmes (e.g. the World Climate Programme, WCRP, the World Oceans Programme and International Polar Year).

56. A number of organizations and bodies contributed to research on and systematic observation of the climate system in the Russian Federation, including: the Russian Federation Academy of Science, the Institute of Global Climate and Ecology, the Main Geophysical Observatory, Roshydromet, universities and research centres. The Russian Federation has implemented several federal programmes and projects (e.g. the Federal Space Programme, the Federal World Ocean Programme and the federal programme on ecology and natural resources), which include a wide range of research topics related to climate change. The four main research themes are: climate modelling and prediction, and climate change impact, mitigation and adaptation. Information is provided in the NC4 on training in data exchange and archiving provided for experts by the World Meteorological Organization (WMO) Regional Associations II and VI.

57. Roshydromet is responsible for systematic observation of the climate system, in cooperation with other organizations. Several programmes and activities have been implemented in order to operate ground and space-based climate observing systems. These include in situ observing networks and space-based observing systems, which provide real-time data for weather prediction and forecasting, and continuous measurements over long periods of time. The Russian Federation is in the process of implementing the programme for the modernization and technical upgrading of Roshydromet's organizations, which is aimed at improving observing and monitoring systems.

58. The ERT commends the Russian Federation for the detailed description in the NC4 of its involvement in research and systematic observation. The ERT recommends that the Russian Federation provide information on the actions taken to support related capacity-building activities in developing countries, for the purpose of enabling the participation of the developing country Parties in research and systematic observation activities. The ERT encourages the Russian Federation to provide summary information on the status of national plans and programmes targeted at providing support for developing countries to establish and maintain observing and monitoring systems and related data.

#### **F. Education, training and public awareness**

59. In the NC4, the Russian Federation has provided general information on its actions related to education, training and public awareness, as required by the UNFCCC reporting guidelines. The ERT noted that the coverage of this subject was not sufficient with respect to the UNFCCC reporting guidelines, in particular concerning general policy regarding education and training. Following a request made by the ERT during the review, the Party has provided additional information which helped to better evaluate the progress in implementation of Article 6 of the Convention in the period between the submission of the NC3 and the NC4.

60. The NC4 and additional information provided by the Party in response to a request made by the ERT during the review state that environmental education is coordinated by the Ministry of Education and Science of the Russian Federation through the Scientific-methodological Council, which was created by the Ordinance of the Minister in 2002. The Scientific-methodological Council is developing methodological guidelines and recommendations for the inclusion of environmental disciplines in the curricula of secondary and higher education establishments and is accrediting and licensing specialized educational establishments, which are training specialists in environmental disciplines, coordinating the establishment of scientific centres and elaborating publications on environmental issues. According to Decree number 889 of the President of the Russian Federation of 4 June 2008 on measures for improving energy and environmental efficiency in the Russian economy, the inclusion of basic environmental knowledge in the curriculum is envisaged. In pursuance of that Decree, the Ministry of Energy of the Russian Federation developed an integrated plan of action, including activities aimed at supporting information and educational measures at the municipal, regional, federal and international levels.

61. The Party has provided comprehensive and detailed information on activities at the university level, including training of specialists on climatology and meteorology in different university centres. In addition, information is provided on training courses organized on an annual basis by Roshydromet and on the participation of specialists from the Russian Federation in training organized by WMO. The regularly published specialized bulletin entitled "Climate change" is aimed at specialists and decision makers and includes information on new developments in climate science, negotiations under the Convention and measures aimed at limiting GHG emissions.

62. With respect to public awareness, the Party reported that there is limited involvement of the main television channels and newspapers in informing the public on climate change issues. The NC4 states that information is disseminated mainly by Roshydromet through specialized scientific and educational publications, press releases by regional branches of Roshydromet and specialized websites. The ERT



noted that limited information is available in the NC4 on the special programmes at the federal and regional levels on the different aspects of energy efficiency and energy conservation in the context of the implementation of the Kyoto Protocol and joint implementation projects.

63. Within the framework of donor-funded projects, specialized non-governmental organizations (NGOs), such as the Russian Federation Regional Ecological Centre, the Centre of Energy Efficiency, the Energy Carbon Fund, the World Wildlife Fund Russia and some regional NGOs, initiated and implemented a range of climate change awareness-raising and educational activities, and an assessment of the country's needs for implementation of the New Delhi work programme on Article 6 of the Convention and the Kyoto Protocol. Seven regional seminars were organized to inform the business community, local authorities and the public about the link between climate change and energy efficiency and energy saving. Furthermore, these NGOs were active in preparing educational and awareness-raising publications, including on topics such as broader use of the media and creating links with the international community in relation to climate change.

64. The ERT encourages the Russian Federation to report in the future on the progress in implementing the New Delhi work programme and on the level of public participation in the preparation and domestic review of its next national communication, GHG inventory, and programmes and measures aimed at limiting GHG emissions. The ERT also recommends that the Party include information on further actions to raise public awareness of climate change, links between climate change and energy efficiency, and adaptation to climate change. Enhanced cooperation between the Government and environmental NGOs may help to achieve this.

### **III. Evaluation of information contained in the report demonstrating progress and of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol**

#### **A. Information contained in the report demonstrating progress**

65. The Russian Federation's RDP includes four chapters, which contain most of the information required by decisions 22/CP.7 and 25/CP.8. The ERT noted that the following information required by these decisions was not provided: an evaluation of how domestic measures, in the light of emission trends and projections, will contribute to the Party's meeting its commitments under Article 3; and a description of the activities, actions and programmes undertaken by the Party in fulfilment of its commitments under Articles 10 and 11. The ERT found the information contained in the RDP to be consistent with that provided in the NC4.

66. In order to facilitate the implementation of the Kyoto Protocol, in 2005 the Interdepartmental Commission was established to coordinate government institutions involved in climate change activities. Since 2005, 52 federal programmes have been implemented in the Russian Federation, including: (1) a federal programme for an energy-efficient economy for 2002–2005 (costing RUB 3.8 billion in 2005); (2) a federal programme on ecology and natural resources of the Russian Federation for 2002–2010 (costing RUB 1.2 billion in 2005); (3) a federal programme for increasing the productivity of Russian soils for 2002–2006 (costing RUB 2.1 billion in 2005); and (4) a federal programme for the modernization of the transport system of the country for 2002–2010 (costing RUB 128.9 billion in 2005). Also, the NC4 gives details of a Danish technical support programme that was implemented in the Russian Federation.

#### **B. Supplementary information under Article 7, paragraph 2, of the Kyoto Protocol**

67. The Russian Federation has provided most of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol in its NC4 and RDP. This information reflects the steps

taken by the Russian Federation to implement the relevant provisions of the Kyoto Protocol. The supplementary information is placed in different sections of the NC4 and RDP. Table 7 provides references to the NC4 and RDP chapters in which supplementary information is provided.

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

Supplementary information	Reference
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	RDP, chapter 3, pp. 41–44 NC4, chapter 4, pp. 67–68
Policies and measures in accordance with Article 2	RDP, chapter 3, pp. 19–40 NC4, chapter 4, pp. 58–69
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	RDP, chapter 3, pp. 14–42 NC4, chapter 4, pp. 58–70
Information under Article 10	RDP, chapter 3, pp. 15–16
Financial resources <sup>a</sup>	NA

*Abbreviation:* NA = not applicable, NC4 = fourth national communication, RDP = report demonstrating progress.

<sup>a</sup> As a country with an economy in transition, the Russian Federation does not have to report on the implementation of Article 11 of the Kyoto Protocol, including on the provision of new and additional resources.

68. The Russian Federation has not reported the following elements 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; and a description of national legislative arrangements and administrative procedures relating to the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol. The ERT recommends that the Russian Federation include these reporting elements in its next national communication. The ERT encourages the Russian Federation to provide more information on its cooperation with other countries in implementing PaMs, in accordance with Article 2 of the Kyoto Protocol.

69. In response to a request made by the ERT during the review, the Russian Federation provided additional and detailed supplementary information on Article 7, paragraph 2, of the Kyoto Protocol.

#### IV. Conclusions

70. On the basis of the information provided in the Russian Federation's NC4 and RDP, the ERT developed an understanding of the state of implementation of the country's commitments under the Convention and the Kyoto Protocol. The ERT noted that after a sharp decline in GDP in the period 1990–1998 as a result of the transition to market economy, the Russian Federation has been experiencing steady economic growth. However, despite this growth, GHG emissions have been increasing at a relatively low rate. This is mainly explained by changes in the energy supply mix owing to market forces and the implementation of PaMs in the energy sector, namely in energy efficiency and energy conservation in power generation, energy conservation in transport and a shift to low-carbon technologies.

71. In 2007, national GHG emissions without LULUCF were 33.9 per cent below the 1990 level and national GHG emissions with LULUCF were 73.8 per cent below that level. In the period 1990–2006, the energy intensity per GDP unit decreased by 31.7 per cent, but still remained relatively high compared with other Parties.

72. The Russian Federation provided detailed information in its NC4 on its framework policies and PaMs in the energy sector. The effects are estimated only for some policies in the energy sector. The ERT noted the importance attached to the programmes in the energy sector and their results. Information

on the activities undertaken to implement PaMs in the non-energy sectors is limited and the effects of these PaMs are not reported. No specific information is provided on PaMs targeting emissions from the industrial processes and waste sectors.

73. In the NC4 and RDP, the Russian Federation has presented GHG projections according to the ‘with measures’ scenario for the period 2005–2020. In response to a request made by the ERT during the review, the Russian Federation provided an update of this scenario. The projected reduction in GHG emissions under the ‘with measures’ scenario in relation to the base year level, provided by the Russian Federation in response to the request made by ERT during the review, is 28.0 per cent in 2010. Thus, this projection indicates that the Russian Federation is able to meet its Kyoto Protocol target (that is, to keep emissions at the base year level) and GHG emissions are not expected to exceed the Kyoto Protocol target even by 2020.

74. In the course of the IDR, the ERT formulated a number of recommendations relating to the completeness and transparency of the Russian Federation’s reporting under the Convention and its Kyoto Protocol. The key recommendations<sup>2</sup> are that the Russian Federation in its next national communication:

- Provide a more in-depth analysis of how national circumstances have been affecting GHG emissions from the LULUCF sector over time, taking into consideration the significant impact of that sector on the net GHG emission trends;
- Provide a textual description of the principal PaMs for the waste and industrial processes sectors, summary tables on PaMs by sector, including information on the status of implementation, type, and implementing entity for each policy or measure, and information on how the Russian Federation believes all its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals, consistent with the objective of the Convention;
- Present projections in an aggregated format for each sector, to the extent possible, using the same sectoral categories used in the PaMs section, projections for emissions from fuels sold to ships and aircraft engaged in international transport, and projections on a gas-by-gas basis, not only for CO<sub>2</sub> but also for all other GHGs (CH<sub>4</sub>, N<sub>2</sub>O, PFCs, HFCs and SF<sub>6</sub>) (treating PFCs and HFCs collectively);
- Present the estimated and expected total effects of implemented and adopted PaMs, including an estimate of the total effect of the PaMs, in accordance with the ‘with measures’ definition, compared with a situation without such PaMs, presented in terms of GHG emissions avoided or sequestered, by gas (on a CO<sub>2</sub> eq basis) in 1995 and 2000.

75. In order to improve transparency, the ERT encourages the Russian Federation to:

- Provide a quantitative estimate of the impacts of individual PaMs in terms of GHG emissions avoided, by gas and by sector (on a CO<sub>2</sub> eq basis) for the years 2005, 2010, 2015 and 2020 in tabular format;
- Include projections in a tabular format by sector and by gas and report projections for the ‘without measures’ and ‘with additional measures’ scenarios;
- Provide more detailed information on programmes containing measures to adapt to climate change, including institutional arrangements and coordination mechanisms;

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<sup>2</sup> The recommendations are given in full in the relevant sections of this report.

- Provide information on action taken to support capacity-building in developing countries in order for them to establish and maintain observing systems and related data and monitoring systems.

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 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>>.

FCCC/IDR.3/RUS. Report on the in-depth review of the third national communication of the Russian Federation. Available at <<http://unfccc.int/resource/docs/idr/rus03.pdf>>.

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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>>.

Fourth national communication of the Russian Federation. Available at <<http://unfccc.int/resource/docs/natc/rusnc4r.pdf>>.

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2009 greenhouse gas inventory submission of the Russian Federation. Available at <[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/4771.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/4771.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 of Roshydromet and Russian Academy of Sciences), 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 document was also provided by the Russian Federation:

Г.В.Сафонов, ГУ-ВШЭ, О.В.Луговой, EDF/ИЭПП, 2008. *Долгосрочные прогнозы выбросов парниковых газов.*

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