SECOND BIENNIAL REPORT OF THE RUSSIAN FEDERATION

Submitted in accordance with Decision 1/CP.16 of the Conference of the Parties to the United Nations Framework Convention on Climate Change

Moscow 2015

CONTENTS

I. INTRODUCTION

The Second Biennial Report of the Russian Federation has been developed and submitted in accordance with the Decision 1/CP.16 of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC). The report includes the textual part and the Common Tabular Format (BR CTF) submitted electronically in accordance with the Decision 19/CP.18 of the Conference of the Parties to the UNFCCC. The report was prepared following the "UNFCCC biennial reporting guidelines for developed country Parties" as contained in the Annex I to Decision 2/CP.17 of the Conference of the Parties.

More detailed information on the issues concerned by this report can be found in the Sixth National Communication of the Russian Federation submitted in accordance with the Articles 4 and 12 of the UNFCCC and the Article 7 of the Kyoto Protocol, and in the National Inventory Report on the anthropogenic emissions by sources and removals by sinks of the greenhouse gases not controlled by the Montreal Protocol.

The Department for Scientific Programs, International Cooperation, and Information Resources of the Roshydromet performed the institutional governance over the development of the report. The methodological guidance, preparation, and editorial revision were performed by the Institute of Global Climate and Ecology, Federal State Budgetary Institution under Roshydromet and Russian Academy of Sciences.

II. INFORMATION ON THE GREENHOUSE GAS EMISSIONS AND TRENDS

This chapter includes the estimates of anthropogenic emissions and removals of the greenhouse gases (GHG) not controlled by the Montreal Protocol for 1990-2013 over the territory of the Russian Federation and a brief information on the organizational structure and the procedures for the development the National Inventory Report on the anthropogenic emissions by sources and removals by sinks of the greenhouse gases not controlled by the Montreal Protocol. In accordance with the Decision 2/CMP.17 of the Conference of the Parties to the UNFCCC, the data contained in this chapter correspond to that of the last developed national inventory report.

A. Greenhouse gas emissions and trends

The cumulative anthropogenic emission of greenhouse gases in the Russian Federation comprised in 2013 to 2 815.8 Mt CO_2-equivalent, excluding the Land Use, Land-Use Change and Forestry. This value corresponds to 71.4 per cent of total emission in 1990 or 115.8 per cent of total emission in 2000. With the inclusion of the emissions and removals from the Land Use, Land-Use Change and Forestry (LULUCF), in 2013 the total emission was 2 367.9 Mt CO_2-equivalent (57.2 per cent of the total emission in 1990 or 111.4 per cent of total emission in 2000).

The trends of greenhouse gas (GHG) emissions and removals by sectors[1] in the Russian Federation are presented in Table II.1 and Figure II.1. Significant decrease of emissions is associated with the general economic situation in the country in 1990-1998. The recession affected all sectors. The emissions demonstrated sustained growth in 1999-2008, during the overall economic recovery (both in production and consumption), and the rate of emission increase was much lower than the rate of their decrease in the 1990. For example the level of total emission excluding the LULUCF decreased by 1 552.9 Mt CO_2-eq from 1990 to 1998, and increased by only 358.6 Mt CO_2-eq from 2000 to 2008. The decrease in emissions as an outcome of the global economic crisis was observed in the Russian Federation in 2009. The emissions increased again in 2010-2012, as a result of post-crisis economic recovery, but some decrease occurred in 2013 (by 2.2% relative to previous year).

Table II.1

The GHG emissions and removals by sectors, Kt CO_2-eq

Sector	**1990**	**1998**	**2000**	**2005**	**2010**	**2011**	**2012**	**2013**
Energy	3 250 141	1 984 521	2 002 249	2 238 881	2 334 605	2 402 513	2 414 943	2 361 132
Industrial Processes and Product Use	298 063	157 577	196 991	210 122	202 888	205 857	212 939	216 865
Agriculture	314 826	168 720	152 523	135 031	136 457	130 522	136 532	131 804

[1] *The terms «energy», «energy sector» are used in this Chapter in the sense they are used in the Kyoto Protocol (Annex A) and the IPCC methodological guidelines: the energy sector includes the combustion of all fossil fuel types and the processes that lead to fugitive emissions (technological emissions and leaks) to the atmosphere of fuel products regardless the economic sector, where they occur.*

LULUCF[1)]	200 623	-145 992	-306 371	-355 841	-448 911	-466 365	-439 063	-447 912
Wastes	78 070	77 428	79 280	86 321	96 482	99 661	102 698	106 007
Total without LULUCF[2)]	3 941 100	2 388 245	2 431 043	2 670 355	2 770 432	2 838 554	2 867 112	2 815 808
Total with LULUCF[2)]	4 141 723	2 242 253	2 124 672	2 314 515	2 321 521	2 372 189	2 428 049	2 367 896

[1)] Sign «minus» means net absorption, i.e. removals of the greenhouse gases from the atmosphere.
[2)] Land Use, Land-Use Change and Forestry.

Figure II.1. The GHG emission trend, excluding the Land Use, Land Use Change, and Forestry sector

The distribution of emissions by sectors did not undergo substantial change in 1990-2013. Energy sector still dominates in the emission structure with a share of 83.9 per cent in 2013 (Figure II.2). The share of agricultural sector decreased by 3.3 per cent, and contribution of the Industrial Processes was almost unaltered (the change is by 0.1 per cent). The contribution of Waste sector to cumulative emission continued to be the least despite almost twofold increase of emission between 1990 and 2013.

1990 2013

Figure II.2. The distribution of total GHG emissions (CO_2-eq) by sectors in 1990 and 2013

The contributions of particular greenhouse gases to total emission are illustrated in Figure II.3. The CO_2 plays the leading role coming mostly from the energy sector (fossil fuel combustion). The share of CH_4 in total emission rose to 36.4 per cent. Some decrease of N_2O share was due to decline in application of nitrogen fertilizers caused by the difficult economic situation in the agricultural enterprises.

1990 2013

Figure II.3. The shares of particular greenhouse gases in total emission (CO_2-eq) in 1990 and 2013 (excluding the Land Use, Land-Use Change and Forestry)

Extraction, transportation, processing, and utilization of different fossil fuels provide the highest contribution to the GHG emissions in Russian Federation (excluding using as primary products and materials). The emissions from these processes fall into Energy sector. The emissions in this sector are mostly connected with combustion of extracted in the Russian Federation fossil fuels (oil, natural and associated petroleum gases, coal, and to much lesser extent peat and oil shale), and their processing products. Emissions of CH_4 accompanying the processes of extraction, transportation, processing, storage, and utilization of different fossil fuels. The GHG emissions by main source categories in the Energy sector for 1990, 1998, 2000 and the period from 2008 to 2013 are presented in Table II.2

Table II.2

The GHG emissions in the Energy sector, Kt CO_2-eq

Source categories	Gas	1990	1998	2000	2005	2010	2011	2012	2013
Fuel combustion	CO_2	2 265 874	1 308 973	1 299 291	1 341 494	1 400 915	1 446 977	1 459 535	1 405 196
	CH_4	13 681	4 494	3 535	3 866	3 669	3 748	3 734	3 325
	N_2O	9 077	4 372	4 618	4 975	4 706	5 026	5 105	4 995
Fugitive emissions from fuels	CO_2	72 524	44 759	47 869	73 717	81 310	84 596	86 055	83 002
	CH_4	888 804	621 808	646 813	814 637	843 793	861 943	860 286	864 396
	N_2O	180	114	122	192	213	224	228	217

Metallurgy is the main source of emissions in the Industrial Processes sector. In 2013, it contributed to 40.4 per cent of total greenhouse gas emission. The second most important source is chemical industry providing for 29.2 per cent. Emissions of mineral products industry contribute to 24.9 per cent. The GHG industrial emissions by source categories are presented in Table II.3 for 1990, 1998, 2000 and the period from 2008 to 2013.

Table II.3

The greenhouse gas emissions from Industrial Processes, Solvent and Other Product Use, Kt CO_2-eq

Source category	Gas	1990	1998	2000	2005	2010	2011	2012	2013
Mineral Products	CO_2	88 270	32 639	40 413	50 079	49 462	52 818	52 395	53 932
Chemical Industry	CO_2	39 122	22 663	30 794	34 974	35 006	36 532	35 969	37 498
	CH_4	359	182	287	370	393	410	408	446
	N_2O	4 211	2 369	3 211	4 308	5 295	5 553	5 381	5 596
	F-gases	37 079	22 520	27 056	19 092	8 690	4 703	14 107	19 868
Metal Production	CO_2	110 505	65 706	83 256	91 090	93 281	93 603	90 622	84 158
	CH_4	92	86	106	120	125	130	132	131
	F-gases	15 091	9 829	9 804	6 209	3 493	3 150	3 182	3 275
Non-energy products from fuels and solvent use	CO_2	2 758	911	1 293	1 234	1 124	1 180	1 298	1 265
Electronic industry	F-gases	20	21	32	45	18	30	15	10
Product uses as ODS substitutes	F-gases	8	130	209	2002	5305	7002	8662	9896
Other product manufacture and use	N_2O	540	497	503	511	543	549	551	556
	F-gases	9	24	28	89	153	200	217	236

The emissions of greenhouse gases by source categories in the agriculture of Russia in 1990, 1998, 2000, and for the period from 2008 to 2013 are presented in Table II.4. In 2013, the emissions from agriculture comprised 131.8 Mt CO_2-eq, by 58.1 per cent lower than in

1990. Enteric fermentation (CH_4), systems for animal and poultry manure collection and management (N_2O) and decomposition of plant residues (N_2O) are the most important sources in the agriculture.

Table II.4

The greenhouse gas emissions in Russian agriculture, Kt CO_2-eq

Source categories	Газ	1990	1998	2000	2005	2010	2011	2012	2013
Enteric Fermentation	CH_4	126 068	65 884	58 041	51 966	49 016	48 160	49 597	49 614
Manure Management Systems	CH_4	10 676	5 078	4 577	3 779	3 864	3 920	4 042	4 110
	N_2O	21 145	10 216	9 167	8 358	8 779	8 561	8 947	9 156
Rice Cultivation	CH_4	856	430	520	431	623	644	617	581
Emissions from Agricultural Soils	N_2O	145 017	85 809	78 591	68 763	72 309	67 317	71 312	66 339
Soil liming and urea application	CO_2	11 064	1 303	1 626	1 734	1 867	1 921	2 016	2 005

The net flux of greenhouse gases for the Land Use, Land-Use Change and Forestry (LULUCF) sector significantly depends on the balance of carbon dioxide removals by forests and the emissions mostly related to harvesting operations and fire events. The main reason for forests being the carbon sink within the review period is due to twofold decrease of forest utilization in comparison with the 1990. Also the trend observed in the LULUCF sector is partly associated to reduction of the emission from permanent croplands, caused by the decrease in total land area and by sharp decline of amount of organic fertilizers applied in the early 1990s.

The greenhouse gas emissions and removals by in the LULUCF sector are presented in Table II.5. In 1990-1993, the sector was the source, but since 1994 it has become the sink of greenhouse gases. The LULUCF sector provided for the removal of 447.9 Mt CO_2-eq in 2011, promoting the decrease of net national emissions without the LULUCF sector by 15.9 per cent. As follows from the Table II.5, the managed forests and grasslands (haylands and pastures) were the sink of the CO_2. Timber production, fires, conversion of forest lands to settlements (deforestation) and drainage flooded forest lands are the sources of CO_2 emissions. Destruction of organic matter owing to land cultivation and liming are the main sources of CO_2 under land use. Emissions of other greenhouse gases (CH_4 and N_2O) are mainly related to forest fires.

Table II.5

Emissions and removals of greenhouse gases in Land Use, Land-Use Change and Forestry sector, Kt CO_2-eq[1)]

Category	Gas	1990	1998	2000	2005	2010	2011	2012	2013
Forest land	CO_2	-190 318	-437 218	-546 318	-533 919	-618 743	-580 814	-589 751	-583 731
	CH_4	12 535	16 566	12 472	15 158	15 825	15 905	15 773	14 191
	N_2O	9 753	12 401	10 325	33 419	30 588	31 852	26 471	28 620
Cropland	CO_2	315 232	269 704	211 506	166 231	182 412	127 250	165 055	122 663

	CH_4	5 554	4 639	4 340	3 830	3 683	3 660	3 651	3 643
Grassland	CO_2	39 526	-96 346	-80 532	-115 545	-84 927	-86 594	-82 698	-60 362
	CH_4	2 834	3 228	3 290	3 195	3 112	2 986	2 977	2 944
	N_2O	190	435	400	188	280	192	170	152
Wetland	CO_2	3 390	2 961	2 795	2 389	2 228	2 190	2 153	2 115
	CH_4	260	227	215	183	173	170	170	195
	N_2O	44	39	37	31	29	29	28	28
Settlements	CO_2	16 396	16 892	17 204	14 325	-1 083	1 865	463	-2 461
	N_2O	383	3 067	3 072	2 964	175	143	129	131
Other land	CO_2		18 650	18 650	18 650	269	38	368	10 518
	N_2O		2 382	2 382	2 382	8	8	18	617
Harvested wood products	CO_2	-15 243	35 280	32 692	29 597	17 028	14 727	15 936	12 692

[1)] Sign «minus» means net removals ("pure"removals), i.e. removals of greenhouse gases from the atmosphere.

The emissions of greenhouse gases in the Waste sector in 1990, 1998, 2000, and from 2008 to 2013 are presented in Table II.6. Solid Waste Disposal on Land made the highest contribution to emission. The share of this source increased from 60.2 per cent in 1990 to 73.6 per cent in 2013. Since 1990, the share of wastewater treatment and discharge has decreased by 13.4 per cent and the share of biological treatment of solid waste increased by 0.04 per cent. Emissions of CH_4 and N_2O from biological treatment of solid waste provides for the minimum contribution into total emissions of this sector.

Table II.6

Emissions connected with production and consumer waste, Kt CO_2-eq

Source categories	**Газ**	**1990**	**1998**	**2000**	**2005**	**2010**	**2011**	**2012**	**2013**
Solid Waste Disposal	CH_4	46964	53511	54356	59571	69519	72077	74810	77980
Biological treatment of solid waste	CH_4	24	43	43	43	57	42	49	55
	N_2O	21	38	38	38	51	38	44	49
Waste water treatment and discharge	CH_4	28022	21158	22276	23898	23884	24526	24749	24869
	N_2O	3038	2679	2567	2772	2972	2979	3047	3054

B. Procedure of the National Inventory Report Development

The Russian system for assessment anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol on ozone-depleting substances[2] (hereinafter referred as the National System) was established in order to realize the national commitments of the Russian Federation under the Kyoto Protocol.

The National System was established for:

– Estimation the scale of anthropogenic emissions by sources and removals by sinks of the greenhouse gases;

[2] Government of Russian Federation Order № 278-p of March 1, 2006.

- Annual submission of the corresponding data in the form of national inventory report on anthropogenic emissions by sources and removals by sinks of greenhouse gases in accordance with requirements of the UNFCCC and Kyoto Protocol;
- Preparation of reports, submitted by the Russian Federation in accordance with requirements of the UNFCCC and Kyoto Protocol;
- Provision of information to central and local authorities, organizations and public on the scale of anthropogenic emissions by sources and removals by sinks of greenhouse gases;
- Development of measures for mitigation (reduction) anthropogenic emissions by sources and (or) enhancement of removals by sinks of greenhouse gases.

The Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet) carries the functions of authorized national entity for the National System.

Roshydromet is responsible for ensuring the functioning of the National System and submission of the national inventory report and other necessary information in accordance with requirements of the UNFCCC and Kyoto Protocol. In the capacity of the authorized national entity for the National System, Roshydromet together with the Ministry of Economic Development, Ministry of Natural Resources and Environment, Ministry of Industry and Energy, Ministry of Transport, Ministry of Agriculture, Ministry of Regional Development, Federal Service for State Statistics (Rosstat) and Federal Service for Environmental, Industrial and Nuclear Supervision of the Russian Federation[3] developed Procedure for formation and functioning of the National System including the identification state statistical and other data and information on methods for their collection and treatment. In accordance with the Procedure,[4] the above federal authorities must annually provide to Roshydromet the data and supplies necessary for preparation of the inventory report.

In case of necessity Roshydromet can involve into preparation of the report not committed to the National System federal executive authorities, companies, research and other organizations. Alongside federal executive authorities, the National System also involves some industrial companies.

Within the framework of the National Systems, the Institute of Global Climate and Ecology under the Roshydromet and Russian Academy of Sciences (IGCE), the federal state budgetary institution, carries out the functions for collection, treatment and storage of supplies and data on the assessment of emissions and removals of the greenhouse gases by categories and IPCC sectors, and preparation of the drafts of the national inventory reports and other deliverables for submitting to UNFCCC and Kyoto Protocol bodies and to the governmental authorities concerned.

Procedure for archiving and storage of data, supplies and estimates of emissions and removals and deliverables is regulated by a special internal document of the IGCE[5].

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[3] *The titles of federal executive bodies are given in accordance with the text of the Order of the Government of the Russian Federation № 278-p of March 1, 2006.*

[4] *Registered by the Ministry of Justice of the Russian Federation September 29, 2006, Reg. № 8335.*

[5] *Procedure for storage and archiving in the state institution Institute of Global Climate and Ecology under Roshydromet and Russian Academy of Sciences of data concerning the National inventory of anthropogenic emissions by sources and removals by sinks of the greenhouse gases in the Russian Federation. IGCE. –M., 2007.*

Activity data on GHG emission categories for energy, industry, agriculture, forestry and other sectors of economy and necessary methodical information are collected by the IGCE with the use of the federal statistic system, information and analytic products of ministries and other federal entities, Russian companies, international organizations and scientific-technical and production literature. The 2006 IPCC Guidelines (IPCC, 2006) for national inventory reports and other guidance based on the Russian experience on the national inventory development and scientific researches form the methodical basis for the inventory development beginning from 2015.

The measures on verification, quality assurance and control of the activity data and greenhouse gas emission and removals estimates are an important component of the work. These are performed on a permanent basis. The quality assurance and quality control procedures are multi-level in nature. Primary quality assurance and control of the activity data series is performed in accordance with the internal departmental procedures by the institutions and entities responsible for these data collection and generalization. The IGCE in turn, performs secondary verification, quality assurance and control through the comparison of the data from different sources, consistency checks for the time series and with other methods. Quality assurance and quality control in the inventory estimates are also performed in two stages. At the first stage, correctness of calculations, methods, activity data and parameters is checked in the IGCE in accordance with the internal regulation[6]. At the second stage, independent verification of the inventory is made as the result of the distribution of the draft national inventory report to corresponding federal executive authorities as well as through the review of the sector estimates or particular categories by independent experts.

Recalculation of the previous estimates of emissions and removals is performed as the result of the comments received and can also be made on receipt of more detailed or revised activity data, elaboration the national emission factors or the improvement of methodological approaches to emission estimate. Many recalculations are performed in response to recommendations of the UNFCCC expert reviews of national inventory report. The inventory improvement plan is developed by the IGCE at the beginning of each inventory cycle.

National Inventory Report and the Common Tabular Format were developed on the basis of the Decision 24/CP.19 guidelines of the Conference of the Parties to UNFCCC. As a Party to Annex I UNFCCC and Kyoto Protocol Russian Federation includes into inventory reports additional information in accordance with item 1 article 7 of the Protocol. Information content is regulated by the Decision 15/CMP.1 of the Conference of the Parties to the Kyoto Protocol.

The final version of the national inventory report with the introduced comments of the ministries and federal entities concerned is submitted by the Roshydromet to the Ministry of Natural Resources and Environment, and then to the Government of the Russian Federation. After consideration by the Government, the National Inventory Report is submitted by the Roshydromet to the UNFCCC Secretariat.

The general pattern of the National System functioning is presented in Figure II.4.

[6] *The Order of quality assurance and quality control of the national inventory report of the anthropogenic emissions by sources and removals by sinks of greenhouse gases in Russian Federation developed by the IGCE under Roshydromet and Russian Academy of Sciences. IGCE. –M., 2007.*

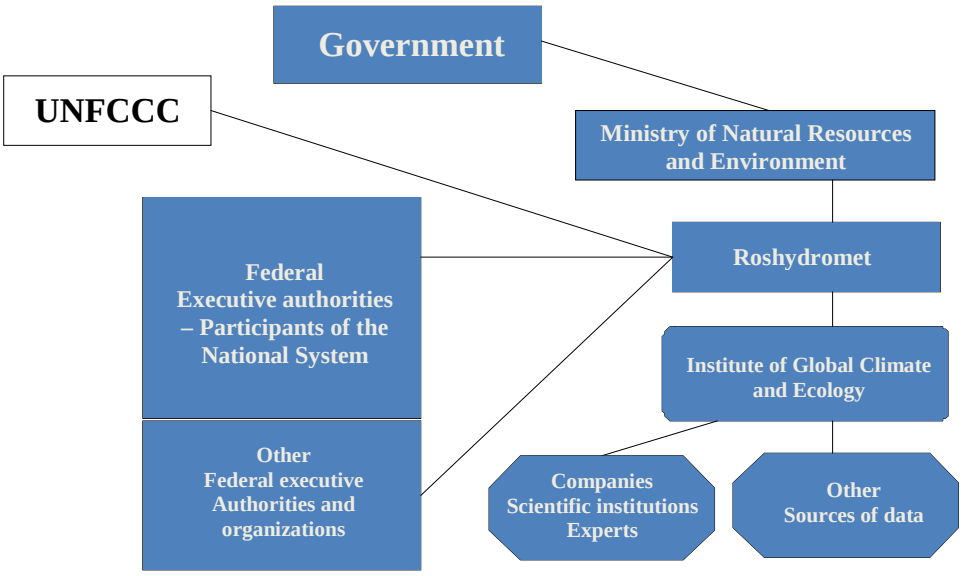

Figure II.4. National System of the Russian Federation (as of 2015).

The National System is arranged according the hierarchical principle and is composed of several levels of structural arrangement with fixed inter-linkages enabling the acquisition of the data with required degree of detail and performance the estimations. The data sources and information flows have been identified, which form the basis for the national greenhouse gas emission calculations and assessment of the efficiency of corresponding policies and measures in different sectors of the national economy.

The flow chart of the national inventory development is presented in Figure II.5. As it is seen from the figure, the development includes collection and primary treatment of the economic and other activity data by means of responsible ministries and federal entities, conversion of the data obtained into calculation formats; assessment of information completeness and preparation of intermediate data for subsequent calculations; particular calculations of the emissions and removals of greenhouse gases. Furthermore, the procedures of verification, internal and external control of the inventory quality are performed. Following the instruction of the Government of the Russian Federation, the final annual inventory report is submitted to the UNFCCC and Kyoto Protocol bodies via UNFCCC Secretariat. The inventory data are also provided to other consumers and published in the periodicals of Roshydromet and Rosstat.

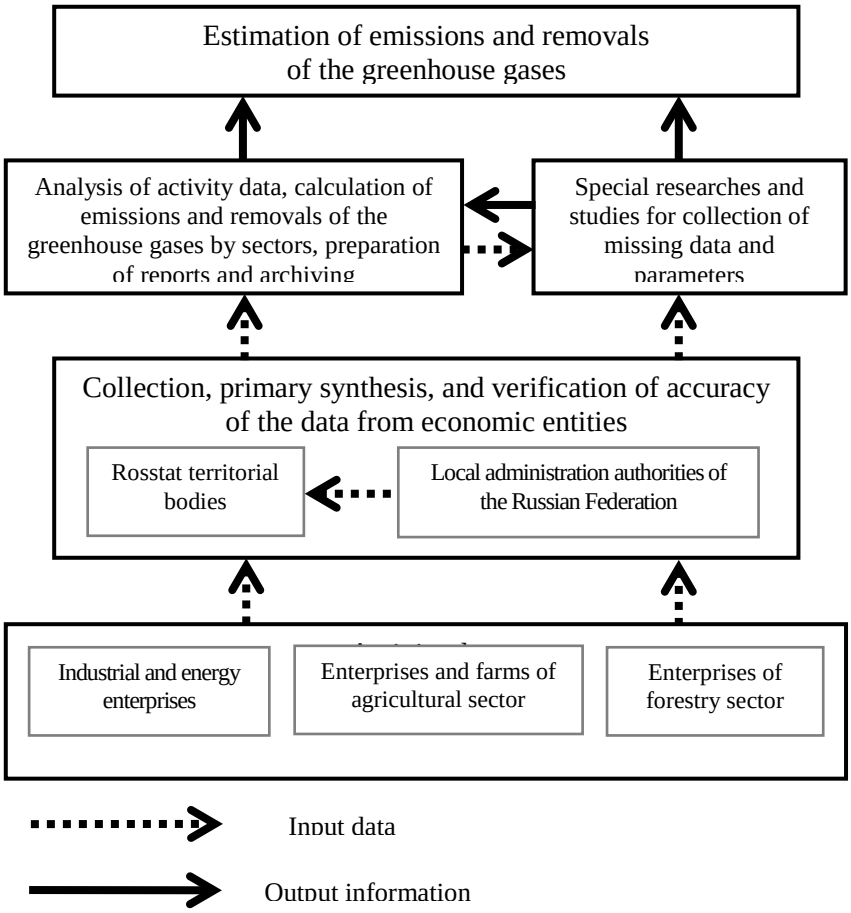

Figure II.5. A flow chart of the inventory of anthropogenic emissions and removals of the greenhouse gases.

III. QUANTIFIED ECONOMY-WIDE EMISSION REDUCTION TARGET

In accordance with the commitments of the Russian Federation as a Party to the Kyoto Protocol to the United Nations Framework Convention on Climate Change, its total anthropogenic emission of greenhouse gases in the first period of the implementation of the Protocol (2008-2012) shall not exceed 100 per cent of fivefold emission of these gases in the base year[7]. The Russian Federation has no commitments on the quantitative reduction or limitation of the greenhouse gas emissions in the second commitment period of the Kyoto Protocol.

The Decree of the President of the Russian Federation "On Reduction of the Greenhouse Gas Emissions" № 752 of September 30, 2013, adopted for the purpose of the implementation the Climate Doctrine of the Russian Federation[8], the Government of the Russian Federation has been assigned for:

- Ensure the reduction by the year 2020 the amount of the greenhouse gas emissions to the level no more than 75 per cent of theses emissions in the year 1990;
- Approve the plan of action to ensure the achievement of the assigned amount of GHG emissions within the 6-month period and foresee in it the development of the parameters for the GHG emission reductions of by sectors of economy (hereinafter plan).

This target value is valid for all IPCC sectors excluding Land Use, Land-Use Change and Forestry.

Pursuant to Decree, the plan was developed and approved by the Russian Federation Government Executive Order № 504-r[9] of April 2, 2014. The federal executive authorities in the Russian Federation are currently developing the above action plan. More detailed information on the quantified emission reduction target will be made available after the approval of the plan. Implementation of actions prescribed by the plan has binding force. An additional point is that RF Government in this Executive Order recommended to executive government bodies of the constituent entities of the Russian Federation to implement necessary measures ensuring the reduction by the year 2020 the amount of the greenhouse gas emissions to the level no more than 75 per cent of theses emissions in the year 1990 The plan does not provide using of international market mechanisms in the furtherance of this goal.

The plan is currently in the implementation phase.

Russian Federation submitted its INDC and corresponding comments on April 1, 2015, with reference to the claim in the UN Climate Summit in September 2014 and in the 20th Conference of Parties to UNFCCC in Lima in December 2014 and to the Decision 1/CP.20 "Lima Call for Climate Action" of this conference, particularly to paragraph 13, containing

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[7] *For the purpose of fulfillment of the commitments under the Kyoto Protocol, the base year for the Russian Federation is the 1990 for CO_2, CH_4 u N_2O, and the 1995 for HFC, PFC, and SF_6.*

[8] *Approved by the Order of the President of the Russian Federation № 861-rp of December 17, 2009.*

[9] *Acts currently as amended by the Government of the Russian Federation Order № 807-r of May 6, 2015.*

the call to the Parties to inform in advance about their intended nationally determined contributions [10]. The value 70-75 per cent of emissions in the year 1990 could be the long-term target of mitigation anthropogenic GHG emissions in Russian Federation by 2030, providing maximally possible accounting of forest absorbing capacity. The economy-wide objective could be achieved without using the international market mechanisms.

The conclusive decision of Russian Federation on its INDC within the framework of new climate agreement will be made taking into account the results of negotiation process and declared INDC of countries-primary GHG emitents.

President of the Russian Federation V.V. Putin announced in his speech at the 21st Conference of the Parties to the UNFCCC in Paris that Russian Federation plans to reduce by 2030 the greenhouse gas emissions by 70 percent of the 1990 base level.

[10] *http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx*

IV. PROGRESS IN ACHIEVEMENT OF QUANTIFIED ECONOMY-WIDE EMISSION REDUCTION TARGET AND RELEVANT INFORMATION

A. Mitigation actions and their effects

National policy and measures to mitigate climate change are developed and fulfilled in three main directions:

- Legislative and regulatory acts:
  - Defining national targeted measures on decrease of anthropogenic emissions of greenhouse gases and providing their fulfillment;
  - providing the order of fulfillment of the national commitments under the UNFCCC and Kyoto Protocol;
- National programs of economic and social development, envisaging a set of targeted measures for mitigation the anthropogenic emissions of greenhouse gases, protection and enhancement the quality of removals of greenhouse gases and their reservoirs;
- Other national programs and measures, implementation of which promotes for the reduction of emission or enhancement of removals of the greenhouse gases;
- Regional, institutional, sectorial, and corporative programs, innovation and technological measures providing either expressly or by implication decrease of anthropogenic emissions and the increase of GHG removals.

Programs and measures promoting reduction of the emissions and enhancement of the removals of greenhouse gases can be implemented at federal and regional levels and by separate institutions (sector, agency and corporate innovation and technologic programs). The measures on application the market mechanisms, gradual decrease or removal of market imbalances, fiscal and other economic incentives are the integral part of the national policy and measures to mitigate the climate change in accordance with the legislation of the Russian Federation.

Unless otherwise specified, adopted legislative and regulatory acts and state (national) programs have no limitation in the validity period, but the probability of their revision and updating is stipulated. Legislative and regulatory acts and national programs on reduction of anthropogenic emissions of greenhouse gases and mitigation of climate change include:

– Climate Doctrine of the Russian Federation (2009);

– Decree of the President of the Russian Federation “On Reducing Greenhouse Gas Emissions” (2013);

– Order of the Government of the Russian Federation approved Action Plan for Implementation of National Climate Doctrine for the period through to 2020 (2011);

– Resolution of the Government of the Russian Federation approved Action Plan for Securing the Adjusted GHG Emissions (2014);

– Resolution of the Government of the Russian Federation on Adoption of the Concept of GHG emission monitoring, reporting and verification system in Russia (2015);

– Resolution of the Ministry of Natural Resources and Environment of RF on methodological recommendations on inventory of GHG emissions in the provinces of RF (2015).

It should be noted that a half of listed documents was adopted by federal entities in 2014-2015, after submission by Russian Federation of the First Biennial Report. Legislative and regulatory acts and national programs determine the long-term strategy of safe and sustainable institutional, economic, and social development under the changing climate conditions. Basically, Russian Federation took the direction of low-carbon economy de3velopment and formed the basis of its implementation. Currently additional regulatory documents provided achievement of specified objective in particular economy sectors.

For the purposes of fulfillment of national commitments under the UNFCCC and Kyoto Protocol, federal laws, resolutions and orders of the government were developed and adopted in Russian Federation in 2006—2011, related to fulfillment of national commitments under Articles 5, 6, 12, and 17 of the Kyoto Protocol. They determine the order of functioning of Russian system for assessment anthropogenic emissions and removals of the greenhouse gases, registry of carbon units, and flexibility mechanisms of the Kyoto Protocol. Formed legal and regulatory framework provides fulfillment of national commitments to the UNFCCC and Kyoto Protocol, including development and submission of national reports and other documents in the field of climate change mitigation. In execution of adopted regulatory documents, Russian Federation submitted on April 4, 2015 to the UNFCCC bodies intended nationally determined contributions into decrease of anthropogenic emission of greenhouse gases. Reduction achieved in the result of realization the national commitments of the Russian Federation under the UNFCCC and Kyoto Protocol is considered in Chapters II and IV.B of this report. The results of the implementation of the flexibility mechanisms of the Kyoto Protocol (Articles 6, 12 and 17) are concerned in details in the Sixth National Communication of the Russian Federation and in the First Biennial Report. Detailed description of activity on decrease of anthropogenic emission of greenhouse gases in Energy, Industry, Building, Transport, Forestry, Agriculture, and Waste sectors is given in the Sixth National Communication of the Russian Federation and in the First Biennial Report submitted to the UNFCCC bodies in 2013 and in early 2014. After submitting the First Biennial Report, Russian Federation took additional actions on climate change mitigation, which are presented in this report.

In the Energy Sector, Federal target-oriented Program “Energy Saving and Increase of Energy Efficiency for the Period till 2020” was approved in 2014. The program envisaged measures on efficient energy use, modernization of electric energy objects, and incitement of renewable energy resources usage. Regional meetings, calls, and representation the projects on energy saving and increase of energy efficiency were arranged in all territorial entities of the RF within the framework of State Program in 2014.

Draft Energy Strategy of Russia for the period up to 2035 was prepared, in which the transition was planned from the resource-based to innovation path of development of fuel and energy complex including sustaining capital. Project envisages the measures on optimization of energy use, energy saving, efficient use of 95% of extracted associated (dissolved) gas, and further development of non-fuel energy production. It is expected that

implementation of the strategy measures will allow decreasing by 2035 emissions of greenhouse gases by 10.5% in comparison with 1990 level.

By the aid of the set of regulatory documents on support of renewable energy resources, investment project portfolio was formed by the end of 2014 to the amount of 111 billion roubles, provided construction of 65 objects of solar energy, 8 objects of wind energy, and 3 objects of small hydropower, total power of which will comprise 1080.8 MW by 2020. First 5 MW solar power plants were put into service in late 2014—early 2015 in Siberia and Orenburg oblast.[11]

Significant efforts on climate change prevention were made by OJSC Rosenergoatom Concern and PJSC Gazprom. Nuclear power stations of OJSC Rosenergoatom Concern produced 180.5 billion kWh in 2014, or about 17.2 percent of all electric power production in Russia. Achievement of electric power production was performed simultaneously with the best over recent years parameters of NPP safety. The increase is planned in Draft Energy Strategy of Russia for the period up to 2035 of the portion of nuclear power generation up to 18 per cent by 2020 and up to 20 per cent by 2035, including construction of new nuclear power plant units and the increase of efficiency of operated units. Currently, nine new units are constructed, and preparations are conducted for construction of Kursk NPP-2 according the innovation project exceeded significantly previous ones in amendments, safety, and respect for the environment.

According the 2011–2020 Energy Saving and Energy Efficiency Improvement Concept, PJSC Gazprom plans to save by 20202 25.7 billion m^3 of natural gas and to decrease by 11.4 per cent its specific consumption for loss and own process needs. PJSC Gazprom is on a par with such companies as Shell and Conoco Philips according to relative rate of emission of greenhouse gases (0.06 Kt CO2-eq per million TOEs).

In Industry sector, Long-term Program of Development of Coal Industry of Russia for the Period up to 2030 was adopted in 2014. The program envisages modernization of the systems of coalbed devolatilization, optimization of mining technology particularly concerning decrease of emissions and discharges and transition to the system of their standardization and displacement of production waste on the basis of the best available technologies in order to minimize anthropogenic effects on climate and environment Planned in the program measures will provide utilization of coalmine methane in the amount 5—10 billion m^3 in 2020 and 30—35 billion m^3 in 2030.

The work continued in 2014–2015 on change-over of enterprises in Russian Federation to the best available technologies (BAT). Regulatory framework was formed in 2014, which regulates using of BAT, including formation in 2015—2017 of sectoral BAT manuals. It is assumed production cycles in all newly-built enterprises will correspond to the best available technologies by 2020. The best available technologies will be introduced by 2035 in 15 thousand large enterprises of the country, contribution of which into total environmental contamination in Russian Federation comprises 90%.

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[11] *http://rodovid.me/solar_power/na-altae-zapuschena-krupneyshaya-v-rossii-solnechnaya-elektrostanciya.html; http://www.rusnano.com/about/press-centre/20150520-hevel-v-orenburgskoy-oblasti-postroena-pervaya-solnechnaya-elektrostantsiya-moschnostiyu-5-mvt*

Leading Russian companies and commercial entities submit the nonfinancial ecological reports to international nongovernmental partnershipы Global Reporting Initiative (GRI) and The Carbon Disclosure Project (CDP). Archangel pulp-and-paper plant obtained at 2015 end maximal rating of climate responsibility among 12 Russian companies-participants of the Carbon Disclosure Project.

The measures on mitigation climate effects in Transport Sector are stipulated in updated in 2014 Transport Strategy of the Russian Federation for the Period until 2030. Envisaged in the Strategy set of measures will allow by 2030 decreasing volumes of specific exhaust of carbon dioxide by 20—22 per cent in motor transport and by 50—51 per cent in railway transport in comparison with similar emissions in 1990. The measures are planned on substitution of oil fuel to alternative fuels. It is assumed that the portion of alternative fuels in total consumption with increase from 4 per cent in 2011 to 17—20 per cent in 2020, the portion of carrier vehicles with hybrid, electric motors, and motors on alternative fuels will comprised 26—29 per cent of total number of carrier vehicles in 2020 and 49—54 per cent in 2030.

The Government of the Russian Federation took measures in 2013 on regulation of relations in the field of using of natural gas vehicle fuel and stimulation of its using in motor transport. Change-over of automotive vehicles to natural gas vehicle fuel is performed in 31 territorial entities of the RF. Currently Russian park of natural gas vehicle fuel-powered cars includes 90 thousand cars and consumes about o.4 billion m^3 methane per year. It is planned to increase this value to 10.4 billion m^3 by 2020. Up to 50 per cent of public transport and municipal vehicles, 30 per cent of carrier of freights, 20 per cent of agricultural vehicles, and 10 per cent of private vehicles will change-over to natural gas vehicle fuel. For this purpose, it is planned to put into service more than 2 thousands of NGV-refueling compressor station by 2020.

The measures on limitation of civil aviation climate effects are realized taking into account provisions of Transport Strategy and document Guidance Material for the Development of States‘ Action Plans (Doc. 9988) of International Civil Aviation Organization (ICAO). National Action Plan to reduce greenhouse gas emissions from civil aviation adopted in 2013 is implemented in Russian Federation. Practical measures include renewal of airline carrier fleet (airline companies obtained in 2014 116 aircrafts, of which more than 90 per cent correspond to modern level of fuel efficiency), modernization of airport infrastructure (work on construction and reconstruction was carried out in 28 airports), and modernization of aircraft navigation system. Air transport decreased the rate of aviation fuel consumption per service unit from 2011 to 2014, and this allowed preventing emission of 12.6 billion tons of CO_2 over this period.

In agriculture and forestry of Russian Federation the set of measures is implemented to prevent negative implications of extreme weather events and emergency situations, including draughts and fires. Measures are directed toward adaptation to unfavorable weather events and climate changes and include optimization of growing conditions of crops on the basis of most efficient methods of farm management. Watering of previously dried peat-bogs on forestry fund lands and lands of other ranks is carried out in some regions of Russian Federation upon the projects developed using regional budget funds.

B. Estimates of emission reductions and removals and the use of units from the market-based mechanisms and land use, land-use change and forestry activities

The cumulative anthropogenic emission of greenhouse gases in the Russian Federation in the base year 1990 excluding the Land Use, Land-Use Change and Forestry sector comprised 3 941 099.57 Kt CO_2-eq.

Total anthropogenic emission of greenhouse gases without LULUCF comprised in 2013 2 815 808.30 Kt CO_2-eq or 71.4 per cent of the total emission in 1990. Emissions by sectors comprised in 2013 72.7% per cent of the total emission in 1990 for Energy sector, 72.8 per cent for Industrial Processes and Product Use Sector, 41.9 per cent for Agriculture sector, and 135.8 per cent for Waste sector.

Emission values were obtained on the basis of approaches fixed in revised Guidelines for the Preparation of National Communications by Parties Included in Annex I to the Convention, part I: UNFCCC Reporting Guidelines on Annual Inventories [12]. More detailed information on sources and sinks of greenhouse gases in this sector and the description of used approaches and methods for estimation emissions and removals is included into chapter II of this report and into National Inventory Report of Anthropogenic Emissions by Sources and Removals by Sinks of Greenhouse Gases[13].

The data on cumulative reduction of the greenhouse gas emissions in the Russian Federation are presented in Table IV.1 and in Figure IV.1. The total cumulative GHG reduction within the period after 1990 reached 28.2 billion tons CO_2-eq without the Land Use, Land-Use Change and Forestry (LULUCF) sector.

Таблица IV.1

Dynamics of cumulative greenhouse gas emission reduction (excluding the LULUCF sector)

	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Total annual emission, per cent in relation to 1990	100.0	94.2	80.6	75.5	67.9	65.7	63.9	61.3	60.6	61.4	61.7	63.2
Cumulative reduction, billion tons CO_2-eq	0.0	0.2	1.0	2.0	3.2	4.6	6.0	7.5	9.1	10.6	12.1	13.6
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Total annual emission, per cent in relation to 1990	63.5	65.6	66.9	67.8	69.7	69.9	70.8	66.8	70.3	72.0	72.7	71.4
Cumulative reduction, billion tons CO_2-eq	15.0	16.4	17.7	18.9	20.1	21.3	22.5	23.8	24.9	26.0	27.1	28.2

[12] *Annex 3 to the decision 24/CP.19. UNFCCC Document FCCC/CP/2013/10/Add.3.*

[13] *Russian Federation. National Inventory Report of Anthropogenic Emissions by Sources and Removals by Sinks of Greenhouse Gases Not Controlled by the Montreal Protocol for 1990-2013 – M., 2015.*

Activity in Land Use, Land-Use Change and Forestry sector was not accounted in the assessment the progress in achievement the quantified economy-wide emission reduction target (see chapter III of this report)[14].

Figure IV.1. The cumulative greenhouse gas emission reduction in the Russian Federation

In the period 1990—2015, Russian Federation did not acquire from other UNFCCC Parties the units from the market-based mechanisms, which could be used to meet its quantified economy-wide emission reduction target, and did not use such units in order to reach this target.

14

 For reference only: Land Use, Land-Use Change and Forestry sector was the source of atmospheric emissions in *1990 per totality of GHG emissions by sources and removals by sinks. Net emissions of greenhouse gases in this sector comprised in 1990 200 623.01 Kt CO_2-eq. Land Use, Land-Use Change and Forestry sector was net sink of greenhouse gases in 2013. Removal value was 447 912.38 Kt CO_2-eq. The values of total emissions of greenhouse gases with Land Use, Land-Use Change and Forestry sector comprised in 1990 and 2013 respectively 4 141 722.58 and 2 367 895.91 Kt CO_2-eq.*

V. PROJECTIONS

The probable scenarios of greenhouse gas emissions in the Russian Federation for the period until 2030 will be primarily determined by macroeconomic situation in Russia and in the world, GDP growth rate, policy and measures for development of energy, industry, transport, agriculture, waste management and other sectors of economy and by the results of implementation of specific measures for limitation and reduction of GHG emissions.

The completion of post-crisis recovery growth in 2010-2012 put the economy to the next stage of development, when the effect of most factors of pre-crisis and post-crisis growth turned out to be depleted to a large degree. The latter resulted in slowdown of the growth rate, and set out the challenges for sustainable long-term growth. Situation on the world oil market has changed in an unfavorable direction.The anticipated stock trends in external and world markets no longer can be the major driving force of economic growth. Structural constraints for growth relevant to improper infrastructure, obsolescent facilities, unfavorable demography and the deficiency of skilled professionals increased significantly. With this, the Russian economy will be unable to return to 2000-2008 growth path in the next 20 years. Even the maintenance of lower growth rate will require substantial reforms, which can create a positive business environment for investments, increase the importance of innovation-driven growth and develop flexible conditions for enhanced asset in the human resources. At the same time, the level of potential GDP growth can vary significantly depending on the efficiency of these reforms.

The basic scenario for deviation of the GDP in the Russian Federation in 2010-2030 was presented by the Ministry of Economic Development in October, 2013. It is given in Table V.1.

Table V.1

The GDP deviation scenario in the Russian Federation in 2010-2030

Parameter	**2011-2015**	**2016-2020**	**2021-2025**	**2026-2030**	**2013-2030 (average)**
GDP growth rate, per cent per year	3.1	3.1	2.5	1.8	2.5

A. Scenarios of emissions in the energy sector

As shown in Chapter II of the present report, the emissions of the greenhouse gases associated with production and consumption of fossil fuel in all sectors of economy (Energy sector) play the key role in formation of the total greenhouse gas emission in the Russian Federation. First of all this is true for CO_2 emission from combustion of solid, liquid and gas fuel and for fugitive emissions of the CH_4.

The scenarios in this chapter are based on the analysis of emission projections in the Energy sector of the Russian Federation, developed by several research groups based on

different models, activity data and assumptions.[15] It was based on 26 publications and took into consideration 71 scenarios. The scenarios considered were based on different methods of process simulation in energy and other sectors, energy efficiency increase, forecasts of production, consumption and export of energy resources and on the simulations of fuel and energy balance of the Russian Federation in the long run. The scale of necessary investments and other economic factors were also taken into consideration. The analysis took into account the evolution of predictive emission estimates published by the same groups in different years. All scenarios were arranged into 5 families, each characterized by GHG emission trends and policies and measures aimed at their reduction including the application of low-carbon technologies, improvement of energy efficiency, carbon capture and storage etc. Three families mostly eligible to the criteria of scenarios "without measures", "with measures" and "with additional measures" were selected for the Sixth National Communication of the Russian Federation.

Table V.2 represents predictive estimates of total greenhouse gas emissions in the energy sector of Russia averaged by the three families of scenarios referred to above. The range of provided estimates is restricted by the year 2030, although in some scenarios the projections were extended until 2050 and 2060.

The first family of scenarios (without measures) is guided by an assumption that the changes in energy intensity and carbon intensity of the GDP would be modified by the inertial (retrospective) pace without any acceleration of policy measures excluding those, which have been already undertaken before the development of projections.

The scenarios in the second family (with measures) assume successful implementation of planned and undertaken so far greenhouse gas mitigation and reduction efforts, which were integrated in policies and measures for modernization of the national economy, improvement of energy efficiency, reduction of environmental pollution, development of nuclear and renewable power generation and others performed in the last years. The paths of most scenarios of this family are characterized by the fact, that the inclination of trajectories is relatively close, despite the differences in initial data used by projection groups. The resulting increment of the emissions is about 160-240 Mt of CO_2-eq per decade.

The upper limit of the range of scenarios of the second family passes through a value of 2.02 billion tons CO_2-eq in 2020, almost strictly corresponding to 75 per cent of total emission in 1990 (2.03 billion tons CO_2-eq).

The scenarios of the third family (with additional measures) assume implementation of special policy and measures with the aim at reduction of the emissions of greenhouse gases such as imposition of GHG emission taxes, emission trading schemes, introduction of coal methane utilization technologies, carbon capture and storage, accelerated conversion of fuel balance in power energy industry and motor transport owing to tight emission limits etc. The value of additional in comparison with the second family scenarios emission reduction significantly depends on the degree of severity and timing of the beginning of implementation of additional measures.

[15] *The analysis was undertaken by the Center for Energy Efficiency (CENEF) in 2013.*

Table V.2

Emissions of greenhouse gases in the energy sector, billion tons CO_2-eq[1)]

		Year			
		2010[2)]	**2015**	**2020**	**2030**
Without measures					
Total emission	Range	–	2.05-2.12	2.27-2.42	2.72-3.02
	Projective estimate	1.82	2.08	2.35	2.87
	per cent to 1990	67.2	76.8	86.5	105.9
CO_2	Projective estimate	1.44	1.65	1.86	2.28
CH_4	Projective estimate	0.37	0.43	0.48	0.59
N_2O	Projective estimate	0.01	0.01	0.01	0.01
With measures					
Total emission	Range	–	1.88-1.92	1.93-2.02	2.04-2.22
	Projective estimate	1.82	1.90	1.98	2.13
	per cent to 1990	67.2	70.0	72.9	78.6
CO_2	Projective estimate	1.44	1.51	1.57	1.69
CH_4	Projective estimate	0.37	0.39	0.40	0.44
N_2O	Projective estimate	0.01	0.01	0.01	0.01
With additional measures					
Total emission	Range	–	1.82-1.84	1.82-1.86	1.82-1.89
	Projective estimate	1.82	1.83	1.84	1.86
	per cent to 1990	67.2	67.5	67.9	68.5
CO_2	Projective estimate	1.44	1.45	1.46	1.47
CH_4	Projective estimate	0.37	0.37	0.38	0.8
N_2O	Projective estimate	0.01	0.01	0.01	0.01

[1)] The sums of emissions by gases may insignificantly differ from the totals as a result of rounding
[2)] Actual emission

B. Scenarios of emissions and removals in the forest sector

The scale of forest cover disturbance affects essentially emissions and removals in the forest sector. Disturbances in the managed forests are controlled by human activity, particularly by determination of allowable cut, establishment of protected forest activities, measures for prevention and control of forest fires and pest outbreaks. This section presents the projections of carbon dioxide emissions and removals in the forest sector for the period from 2010 to 2050 under the implementation of different scenarios of forest utilization. Climatic conditions are assumed constant and corresponding to the level of 1990.

Widely known CBM-CFS3 model of the Canadian Forestry Service was used as the projection tool. The model was adapted to natural conditions and forest inventory requirements of the Russian Federation within the frames of cooperation between the Federal Forestry Agency and the Canadian Forestry Service. Projection calculations were made differentiated by the members of the Russian Federation.

Four scenarios of forest use were considered. Scenario 1 assumed retention of moderate level of forest use existent in 1992-2002 (i.e. in the period preceding the activity data obtained, which were the state forest inventory data as of January 1, 2003). According to this scenario, the moderate scale of felling and forest fires as well as the scale of reforestation will remain for the period until 2050.

Three other scenarios were developed in account the National Strategy for Forest Sector Development until 2020, which stipulates innovation scenario including the increase of wood harvest by 57 per cent by 2020 in comparison with the 2007. Forest utilization in these scenarios demonstrates linear increase (by 5.7 per cent annually) from 2010 to 2020. In case of scenario 2, this growth remains after 2020 up to achieving the estimated annual cut in 2047.

According to scenario 3, forest use in 2020 will stabilize at 157 per cent of the current level. Scenario 4 assumes maximum rate of forest use growth with achievement of the estimated annual cut in 2020. Scenarios 2-4 assume the growth of forest use and take into account restriction of the annual cut, i.e. the regulatory limit in particular members of the Russian Federation.

On retention current level of impact (scenario 1) the phytomass pool in managed forests gradually decreases removals from 430 Mt CO_2 (117 Mt C) in 2010 to 35-97 Mt CO_2 $year^{-1}$ (10-27 Mt C $year^{-1}$) in 2047-2050 (Figure V.1 A). The trend is connected with gradual increase of the age of tree stands and decrease of their capacity for carbon removal. Scenario 3 (brief moderate growth of forest use) insignificantly decreases carbon removal in phytomass of Russian managed forests. Scenarios 2 (continuous moderate growth of forest use) and 4 (fast growth of forest use) notably decrease carbon assimilation by phytomass, and scenario 2 turns it into the source of CO_2 by 2043 with the annual emission 14-69 Mt CO_2 $year^{-1}$ (4-18 Mt C $year^{-1}$).

The projection of total removal of atmospheric carbon by all pools of managed forests is presented in Figure V.1 B. The removals decrease from 730-760 Mt CO_2 (199-207 Mt C) in 2010 to 235 Mt CO_2 (64 Mt C) in 2050 under scenario 1 and 105 Mt CO_2 (29 Mt C) under scenarios 2 and 4.

It should be noted that managed forests remain the CO_2 sink up to 2050 under all scenarios of forest use. The pools of dead organic matter are more conservative in response to disturbance regimes. Consequently, the period for coming to balance by these pools exceeds the considered projection period.

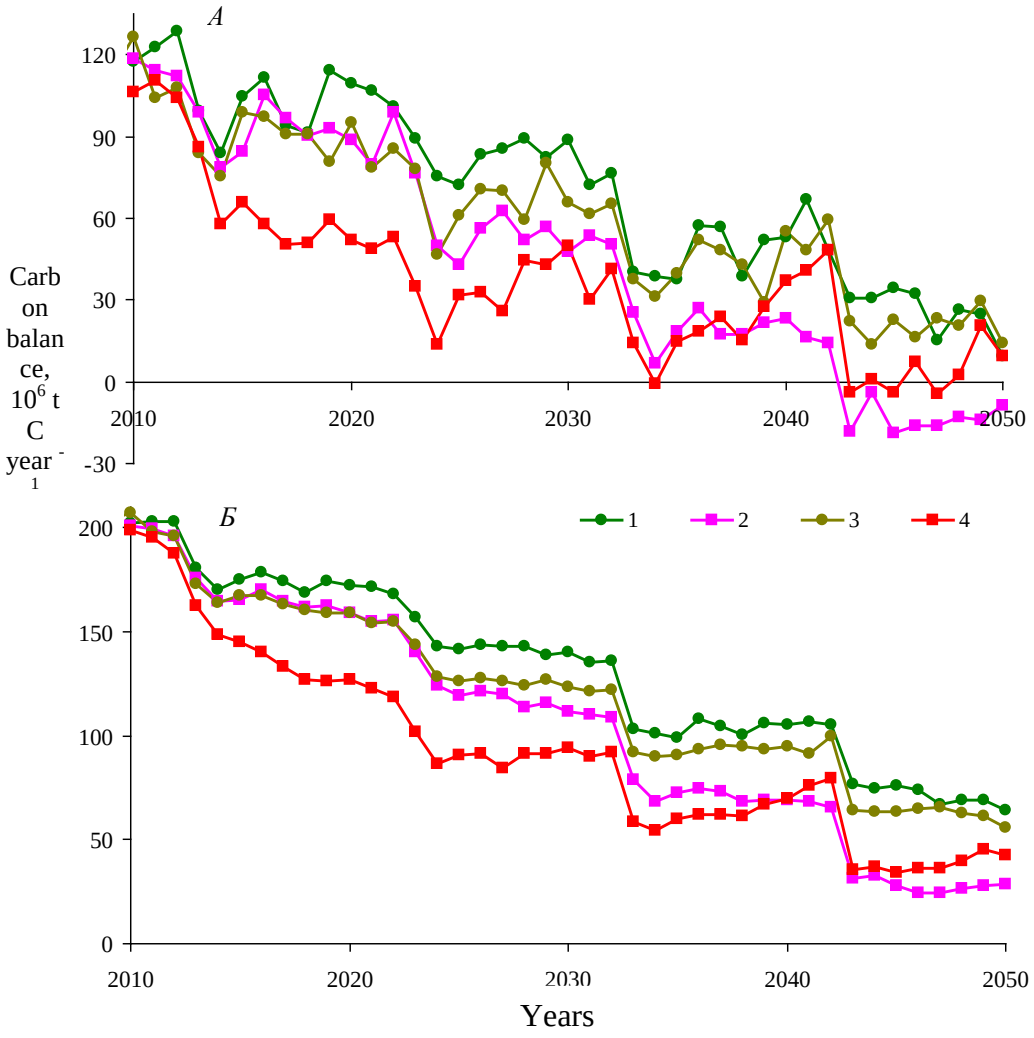

Figure V.1. Projection of carbon budget in the forests of Russian Federation in phytomass pool (A) and all pools (B) under different scenarios of forest use. Scenarios: 1 – retention of the current level, 2 – continuous moderate growth, 3 – short moderate growth, 4 – fast growth.

C. Scenarios of the total greenhouse gas emission

The data on greenhouse gas emissions in Chapter III demonstrate that the structure of cumulative emission of greenhouse gases in the Russian Federation (excluding emissions and removals in the LULUCF sector) remained relatively stable in 1990-2007 concerning the distribution of emissions by gas and by sector. Based on planned installation of modern facilities and technologies in economy and enhanced production management, it is assumed that the GHG emission intensity in other sectors for the period till 2030 with be similar to that in the energy sector.

The scenarios of total equivalent human-induced emissions of the greenhouse gases and those for specific GHGs for the period till 2030 were developed on the basis of scenarios discussed above. The obtained emission estimates are presented in Table V.3. The emissions in table age provided excluding the contribution of the LULUCF sector.

Table V.3

Emission of greenhouse gases in Russian Federation, billion tons CO_2-equivalent[1)]

		Year			
		2010[2)]	**2015**	**2020**	**2030**
Without measures					
Total emission	Projective estimate	2.22	2.54	2.86	3.50
	per cent to 1990	66.1	75.7	85.2	104.3
CO_2	Projective estimate	1.60	1.83	2.06	2.52
CH_4	Projective estimate	0.49	0.56	0.63	0.77
N_2O	Projective estimate	0.11	0.13	0.15	0.18
F-gases	Projective estimate	0.01	0.02	0.02	0.02
With measures					
Total emission	Projective estimate	2.22	2.31	2.41	2.59
	per cent to 1990	66.1	69.0	71.8	77.4
CO_2	Projective estimate	1.60	1.67	1.73	1.87
CH_4	Projective estimate	0.49	0.51	0.53	0.57
N_2O	Projective estimate	0.11	0.12	0.12	0.13
F-gases	Projective estimate	0.01	0.01	0.02	0.02
With additional measures					
Total emission	Projective estimate	2.22	2.23	2.24	2.26
	per cent to 1990	66.1	66.5	66.9	67.4
CO_2	Projective estimate	1.60	1.61	1.62	1.63
CH_4	Projective estimate	0.49	0.49	0.50	0.50
N_2O	Projective estimate	0.11	0.11	0.12	0.12
F-gases	Projective estimate	0.01	0.01	0.01	0.01

[1)] The sums of emissions by gases may insignificantly differ from the totals as a result of rounding
[2)] Actual emission

The total emission will not exceed the 1990 level by 2020 in any of the scenarios considered. In 2030, the 1990 level will be exceeded only for scenario “without measures”.

D. Prospects of scenario generation

The Report contains the same scenarios of greenhouse gas emissions as previous biennial report. Development of scenario projection of GHG emission volume for the period till 2020 and for further extension till 2039 and its renewal every two years is stipulated in Action Plan to ensure the achievement of the assigned amount of GHG emissions (see Chapter III of the report).

VI. PROVISIONS OF FINANCIAL, TECHNOLOGICAL, AND CAPACITY-BUILDING SUPPORT TO DEVELOPING COUNTRY PARTIES

As a Party not included in Annex II to the UNFCCC and in accordance with the UNFCCC Guidelines, the Russian Federation does not submit in its biennial report the information on financial and technological support for capacity building in the developed country Parties[16]. However, recognizing amenability for climate conservation, Russian Federation participates in achievement of the Millennium Development Goals. President of the Russian Federation signed in 2014 Executive Order on Approving the Concept of State Policy of the Russian Federation in the Field of Assisting International Development.[17] Russian help is oriented towards solving of most pressing issues, which lower-income countries face.

A. Finance

Russian Federation allocates funds to energy, education, health service, food security, and the promotion of sustainable development. Russian Federation offered more than 127 million US dollars by UN, and total sum of financial support comprised 876 million US dollars.[18] Under the initiative on heavily indebted poor countries, Russian Federation wrote off the debt of only African countries to the value of more than 20 billion US dollars. Russia participates beyond the scope of this initiative in the decrease of debt load by way of using conversion operations “debt in exchange for development assistance”.[18]

Russian Federation contributes on a voluntary basis in 2011--2014 up to 10 million US dollars into trust fund of Global Environment Facility (GEF). Amount of financial contribution of Russia into trust fund of GEF will increase in 2015–2018 to 15 million US dollars.[19] The probability is considered of voluntary participation of Russian Federation in Green Climate Fund.

B. Technology development and transfer

Russian Federation is the global leader by the number of nuclear power plants constructed in foreign countries. Recently, 29 nuclear power plant units are constructed in foreign countries. The projects on construction nuclear power plants are implemented in Bangladesh, Vietnam, Iran, India, and China.

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[16] *The UNFCCC biennial reporting guidelines for developed country Parties (Annex I to Decision 2/CP.17 of the Conference of the Parties to the UNFCCC).*

[17] *Russian contribution to international development assistance in2014 (http://www.minfin.ru/common/upload/library/2015/09/main/Ros_vklad_v_sodeystvie_mezhd_razvitiu_v_2014.pdf)*

[18] *From the speech of the Minister of foreign Affairs of the Russian Federation at the Summit on the Global agenda for development (http://www.mid.ru/vistupleniya_ministra/-/asset_publisher/MCZ7HQuMdqBY/content/id/1794073)*

[19] *Resolution of the Government of the Russian Federation № 1341-r of June 17, 2014.* (http://www.bestpravo.ru/rossijskoje/xi-praktika/x5a.htm; http://www.rg.ru/2014/07/21/ekofond-site-dok.html)

C. Capacity building

Russian Federation participates in multi-donor trust Fund of the World Bank to increase the capacity of East European and Central Asian countries.

The projects were endorsed under trust fund in 2014 on capacity building in the field of adaptation and reducing the negative consequences of climate change in Central Asia.[20]

Russian Federation participates under the United Nations Development Program (UNDP) in financing the project Enhancement of Disaster Resilience, Response, and Recovery for the Pacific Small Island Developing States. The Project stipulates capacity building in fifteen small island Pacific states for the purposes of efficient prevention and clean-up operations of disasters caused also by climate change. Russian Federation appropriated 7.5 million US dollars in 2013—2014 for implementation the project measures.

Russian Federation finances the UNDP projects in Armenia and Kyrgyzstan promoting the improvement of rural infrastructure, energy efficiency, and sustainable management of water resources. Russia disbursed respectively 3.5 and 5 5 million US dollars for the projects «Complex Development of Naryn District in Kyrgyzstan» (2013– 2014) and «Development of Rural Regions in Armenia» (2015–2019).

Russian Federation promotes capacity building of CIS states in combating climate change environmental challenges. Russian Federation disbursed for this purpose under the UNIDO project "Creation of regional capacity (CIS) for the development of programs to address global environmental problems"442.5 thousand US dollars for the period 2014–2015

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[20] *From the speech of the Minister of foreign Affairs of the Russian Federation at the Summit on the Global Agenda for development (http://www.mid.ru/vistupleniya_ministra//asset_publisher/MCZ7HQuMdqBY/content/id/1794073)*

VII. OTHER REPORTING MATTERS

The process of self-evaluation of the emission reduction commitments in the Russian Federation is performed through:

- The course of consideration by the Government of the Russian Federation of the drafts of annual national inventory reports on anthropogenic emissions and removals of greenhouse gases, draft national communications and draft biennial reports of the Russian Federation subject to submission in accordance with the commitments under the UNFCCC and Kyoto Protocol;
- The approval of the drafts of the above documents by the federal executive authorities.

Additional element of self-evaluation process is the consideration by the Government of the Russian Federation of the report on the realization of Integral Plan for Implementation of the Climate Doctrine of the Russian Federation for the period through 2020[21] and reports on the realization measures ensuring the reduction by the year 2020 the amount of the greenhouse gas emissions to the level no more than 75 per cent of theses emissions in the year 1990[22].

Information on the progress on setting national rules for local actions against domestic non-compliance with emission reduction targets can be included in the next biennial reports, in case such rules are developed and adopted in the Russian Federation, particularly in the course of realization of the Decree of the President of the Russian Federation № 752 of September 30, 2013, "On the Reduction of the Greenhouse Gas Emissions".

[21] *According to the item 31 of the Integral Plan for Implementation of the Climate Doctrine of the Russian Federation for the period through 2020 approved by the Order of the Chairman of the Government of the Russian Federation of April 25, 2011, № 730-r, this report is annually submitted to the Government by the Ministry of the Natural Resources and Environment of the Russian Federation by March 15.*

[22] *According to the item 4 Resolution of the Government of the Russian Federation of April 2, 2014 № 504-r, report on plan implementation annually submitted to the Government of the Russian Federation by the Ministry of Economic Development of the Russian Federation by May 1.*