

**Pacific Northwest National Laboratory  
Institute of Global Climate and Ecology**

**Contract No. 354667-A-Q2**

**A Regional Pilot Project to Develop Monitoring and  
Reporting Capacity for Multiple Greenhouse Gases  
in Russia**

**FINAL REPORT**

**Project Leader**

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**Moscow-Novgorod, December 1999**

## PREFACE

The given Final Report is prepared by the Russian Team with the Project Leader Alexey Kokorin, Institute of Global Climate and Ecology, Moscow, Russia, under the Contract No. 354667-A2-Q2 with Battelle Memorial Institute, Pacific Northwest Division in connection with Battelle's management, operation and maintenance of the U.S. Department of Energy's Pacific Northwest National Laboratory at Richland, Washington, under Contract DE-AC06-76RL01830.

The general goal of the project was improvement of the greenhouse gas (GHG) emissions monitoring and reporting practice in Russia as well as stimulating GHG emission reduction. Three specific goals of this project are as follows:

1. Inventory of greenhouse gas emissions in the pilot region (Novgorod Region) aimed at further dissemination of experience and development of inventory practice in other regions of Russia in order to gradually cover the whole country.
2. Preparation of a preliminary version of the methodological handbook "Guidelines for GHG inventory on regional level in Russia" focused on a wide use in the regions of Russia and New Independent States.
3. Performing several case studies on GHG inventory in order to get some more profound knowledge of the special cases, which also is directed to further use in the other regions and Russia as a whole. Under this project the following four case-studies were carried out: Coal methane; SF<sub>6</sub> in electrical equipment; Problems of GHG emission inventory in forests; Detailed GHG emission inventory a number of industrial enterprises of Novgorod region and assessment of their participation in an international cooperation on emission reduction.

This final report entirely corresponds to the aims declared and describes them step by step.

The first Section contains general information on the project; firstly the goals and the stages of the project implementation, the calendar time-table (work plan), criteria of the pilot region selection, and institutional organization of work are described. Next the materials on the current situation of the inventory in Russia are given and the importance of this project to achievement of the UNFCCC goals is described. The fulfillment of the project is shown to be very important for the progress in GHG inventory in the country as a whole and it is actually a catalyzer of further activity in this field. The next sub-section is devoted to general description of the pilot region that is Novgorod Oblast, including description of the organizational and technical capacities existing in the region and the experience of region's involvement in implementation of different international environmental projects. The last sub-section includes description of the institutional system of GHG emission inventory in the region, which is based on the existing and successfully working system of the atmospheric pollution control.

The second Section of the report is devoted to the inventory of greenhouse gases in Novgorod region. It includes a small summarizing sub-section and the sector specific description of sources corresponding to the modules of IPNC Guidelines.

The third Section presents the results of the four Case Studies mentioned above. Two of them (Coal methane and SF<sub>6</sub> in electric equipment) are directed to the use in the whole country. Another case study (Problems of GHG emission estimation in forests) is of an explorative

nature and aimed at description of the problem and setting tasks for further research rather than proving concrete recommendations. Just such study really reflects the current situation with the forest emissions estimation. In contrast to that, the fourth case study (Detailed GHG emission inventory a number of industrial enterprises of Novgorod region and assessment of their participation in an international cooperation on emission reduction) is another. It has a strictly practical aim of analyzing the most perspective enterprises of the region and suggesting concrete measures of the emission reduction.

In the fourth Section there is a brief description of the "Guidelines for GHG inventory on regional level in Russia". The whole text of the Guidelines is given in Appendix (270 pages), so for the reader's convenience and continuity of the report only some excerpts from the Preface to the Guidelines are given and the main distinguishing features and specials of the Guidelines are described. In general, the Russian text is a modification of the Revised IPCC Guidelines which is completely compatible with it.

The fifth Section includes the report on the Workshop held in Novgorod on 14-15<sup>th</sup> December 1999. It consists of a description of the aims and tasks of the Workshop, its agenda and a list of participants. The Workshop proceeding, the major aspects of the presentations and discussions are presented in three blocks.: The Guidelines and other methodological issues; GHG emissions inventory in Novgorod region; and Participation in an international cooperation on emission reduction. The final comments and conclusions of the Workshop present the results of the whole work on the Project and briefly describe the main recommendations of the Workshop participants on the continuation and further development of the work in 2000 and the forthcoming years.

In more details the conclusions of the Workshop as well as the views on further work are presented in the Conclusions of this Final report.

There are two Annexes to the Final report. It is technically difficult to attach a hard copy of these to the report. The first Annex is the "Guidelines for GHG inventory on regional level in Russia", which consists of 270 pages. A brief description of it addressed to a reader acquainted with the IPCC methodology is given in Section 4. The second Annex entitled "Computer files of the IPCC software with the data on inventory in the Novgorod region" includes more than 100 large worksheets the content of which is presented in the second Section of the report. Thus the Annexes exist in the form of computer files packages (4-10 diskettes in dependence on type of file compressing, "zipping").

This Final report is prepared as an electronic file in both English and Russian languages.

It should be stressed that this Report is a result of joint work of a large team of experts. In addition to the project team listed below in the Project implementation description, Section 1, a large number of collaborators made their important contributions to the success of the Project.

With regards to that, the Project team expresses their deep gratitude to our colleagues from The Environmental Protection Committee of Novgorod Region and it's sub-regional Heads

and Inspectors; managers and workers of a large number of enterprises and organizations of the Novgorod Region who actively assisted us in solving this new and very important environmental protection task. We would like to appreciate the principally important support of this project from US EPA and especially Dina Kruger, Reid Harvey, Bill Irwing, Jennifer Macenodia, our curators from PNNL Meredith Evans, Susan Legro and Ilia Popov. From the Russian side the project was actively supported by The Russian State Committee on Environmental Protection, from which we would like to express our special gratitude to Sergei Kuraev and Vsevolod Gavrilov. During discussions at the Workshop in Novgorod on 14-15<sup>th</sup> December 1999 we received a lot of useful comments and recommendation which were taken into account when preparing this Final Report. We appreciate all specialists who provided their comments to us and participated at the Workshop and especially Inna Gritsevich, Alexander Golub, Vitaly Milyaev, Valentina Mikushevich, and Oleg Plougnikov.

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### 2. Computer files of the IPCC software with the data on inventory in the Novgorod region

Inventory files are organized as standard IPCC software: one directory for one year, therefore 9 directories: 1990 - 1998

Each directory has 5 files of Inventory Modules 1-6 (number 3 is included in 2<sup>nd</sup>) and Overview.xls file with overview tables.

1990 (file 1990\_Nov.zip), which includes (as well as all 1991 – 1998 below):

Module1.xls - Module6.xls by IPCC Modules and Overview.xls

1991 (file 1991\_Nov.zip)

1992 (file 1992\_Nov.zip)

1993 (file 1993\_Nov.zip)

1994 (file 1994\_Nov.zip)

1995 (file 1995\_Nov.zip)

1996 (file 1996\_Nov.zip)

1997 (file 1997\_Nov.zip)

1998 (file 1998\_Nov.zip)