

## CONCLUSIONS

The major results of the Project could be summarized as follows:

1. It was shown on the example of the practical GHG inventory in the Novgorod Region that it is possible to perform a quite good quality inventory in a typical Russian region. If based on the existing system of atmospheric pollution control of the Russian State Committee of Environmental Protection, such work would require just a small amount of additional resources. The inventory of GHG in the Novgorod Region has been done. It entirely corresponds to the IPCC reporting format and the information is sufficient to fill out the New Reporting Format suggested by UNFCCC Secretariat.
2. A generally sufficient methodological material for GHG inventory in several regions of Russia was prepared. This material is a prototype of the Guidelines, which would be obligatory for use by all regional branches of the State Committee of Environmental Protection of Russia (it means in all regions). It is still rather far from its final version, in particular, there is a large amount of work to be done for its unification with the other documentation of the Committee. Undoubtedly, it can be used to conduct the work in several other regions.
3. Under the special Case Studies the data were obtained that are necessary for emission inventory in two separate sectors: methane emission in coal mines and SF<sub>6</sub> emission in electric equipment.
4. The Inventory together with the Case Study on the largest GHG emitting enterprises of the region enables to make a list of potential participants in international cooperation on emission reduction. Such a list is compiled for the Novgorod Region as a result of this project. About five enterprises expressed their willingness and abilities to start practical negotiations.

In further development of this work, it is important to take into consideration the common opinion of the Workshop participants that extending of the project implementation experience to some other regions in the next year would be quite reasonable. However it will take several years to extent this experience through the whole Russia or even the largest part of it. For this purpose not only larger experience should be accumulated but some institutional and financial problems should be solved.

In particular, a governmental decision is needed concerning development of the GHG emission inventory *on the basis of the existing system* of atmospheric pollution control. By the way, such a system has already been covering some of the greenhouse gases of indirect impact (SO<sub>2</sub>, CO, NO<sub>x</sub> and others) which are taken into consideration by the UNFCCC, but not included into the Kyoto Protocol. Otherwise GHG inventory would require immensely more costs (and it is non-feasible under current Russian circumstances) or its quality for the country as a whole would be rather low, just at the level of very approximate estimations (which would not satisfy the conditions of Russia's participation in an international cooperation on GHG emission reduction).

Dissemination of the Novgorod region experience in some other regions of Russia in 2000-2001 will be a quite substantial contribution to preparation for the start of a nation-wide inventory system. There would be an example of a large-scale and convincing use of the workable inventory system. There would be a large group of enterprises from different regions that would be willing to participate in an international cooperation on GHG emission reduction. A well-developed methodological basis would exist as well.

Along with the "widening" of the experience it would be desirable to "deeper" the inventory practice. It means gradual fill out of gaps, specific emission factors, improvement of the methodology and practice of emission calculation in such sectors as agriculture and forestry, where accuracy and of emission estimation is still rather low (though this is typical practically for all countries, not only Russia). From the scientific and methodological points of view, it would be very promising to involve "ATMOSPHERA" Institute and Institute of Global Climate and Ecology in further work.

Naturally, such studies should not duplicate IPCC activities. The existing experience of IPCC should be fully used in this field and, first of all, the "good practice" in inventory summarized in the relevant IPCC report, which should be completed in a few months.

One of the steps towards "deepening" the inventory practice should become the improvement of the inventory in the Novgorod region. The representatives of this region should be involved in the further work in 2000-2001 not only for experience dissemination, but also for obtaining more precise data and carrying out inventory of 1999 and the forthcoming years.

Participation of Novgorod specialists would enable, in particular, to evaluate the costs of inventory in an another region, especially taking into account that there is already clear and quite simple scheme of the GHG inventory activity.

One more parallel direction of the work is the improvement of the Guidelines of inventory and legalizing it (or document based on it) as a document obligatory for use within the whole network of the Russian State Environmental Protection Committee. It needs a lot of efforts by the central staff of the Committee, so it should be inevitably included in the work in 2000 and further. It is also very desirable to attract Federal Ecological Fund of Russia as an additional source of financing for improvement of the Guidelines.

Solution to problems of compatibility of the Russian and English software for GHG inventory (particularly, the IPCC software) is a small but very important field of work. It would be a seriously embarrassing factor for people, who do not know English adequately, that is typical of a Russian region.

Situation in the GHG inventory in forestry is somewhat different. Here there is a need for some institutional decisions, first of all, concerning activity of the Russian Federal Forestry Service as well as some methodological improvements, particularly, in the Revised IPCC Guidelines (which as we would like to believe would be elaborated after releasing the IPCC Special Report on LU-LUCF). Currently it seems that a progress in this field could be achieved in 3-4 years only, when: 1) an international LUCF inventory methodology would be agreed and more clear; and 2) Russian Federal Forest Service put its own "brick" into the GHG inventory system. In spite of that, it could not be recommended to exclude forests from the inventory in 2000. The same emission estimates as those obtained in Novgorod region can and should be done in other regions. Evidently that it would require closer involvement of regional and central staff of the Federal Forest Service.

A great contribution of the power and heat sector as well as other energy intensive sectors (metallurgy, chemistry and some other "heavy" industries) in the national GDP is Russian specific feature. This is a reason to stress importance of energy sector. There is a very useful experience here related to the whole Russia, that is the work done by RAO "EES Rossii". Therefore it is quite reasonable to attract to the project one of the leading and progressive energy service companies CENEF. This organization has a large experience in energy saving projects in different regions of Russia, including projects related to GHG emission estimation and reduction.

It is obvious that in other regions it is again necessary to work directly with the largest enterprises and companies that could be considered as potential participants of an international cooperation. In Novgorod region these are several enterprises of the all-Russia importance like AKRON, Borovichi Fireproof Materials Factory, Underground Gas Storage NEVSKAYA, etc. The presence of such enterprises should be a positive argument for choosing a region for further work in 2000.

The last point in the Conclusion section and very important aspect of continuation of the work is the right choice of the regions for inventory in 2000. Though the selection of the concrete regions is not the aim of this project, several selection criteria can be formulated. Naturally, these are based on the basic criteria used for choosing Novgorod Region. They are as follows:

- Relatively stable political and economic situation
- Progressive administration and environmental organizations which have a definite readiness to conduct GHG inventory and to play an active role in future emission reduction.

In addition, some secondary criteria (not too large region, presence of different sources of emissions, facilities for workshop, etc.) were worth of consideration when the first region was chosen, but such criteria not so important for selection of about three other regions and further extension of inventory. The next regions can be complementary to each other by the categories of emission sources, the workshop can be held in just one region, it would be worth of choosing one or two quite large regions. There could be some other criteria for the choice, including:

- One or two regions (of 2-3 ones) should be quite large industrial and well-developed regions, which are basic for the Russian economy. It is too early to consider such giants as Moscow, St. Petersburg and Tumen' but one or two of a little bit smaller regions is worth of involvement.
- Presence of very large industrial enterprises which could become a driving force of Russian participation international cooperation on GHG emission reduction.
- The possibility of direct or indirect participation of other donors at this stage of work and, especially, in further work in the other regions. The regions should correspond to the geographical priorities as well. For example, if the long-term priority of US AID is a work in the Far East of Russia, then one of the regions should likely be in that part of the country. Taking into account the scale of US AID work, the Far Eastern region should be quite large. Of course, this would significantly increase the costs of travelling, so the workshop would preferably be organized in some other region. Another example of potential donor – WWF, which focuses on the Altai - Sayan region. Taking into account the capacities of this organization, the region should not be too large, but the existence of one of the largest Russian

enterprises in it could be requested. There is an example of other kind: Karelia Republic is the main (and really the only) priority of Finland, which showed a definite willingness to participate in a regional inventory. The possibilities of Finland are fairly enough to do this work in that region. Thus it seems as reasonable to exclude Karelia from the Russian-American projects, but to provide our Karelian and Finnish colleagues with all possible methodological assistance.

- Keeping in mind the growing scale of the work, it seems possible to detail the second general criteria ("Progressive administration and environmental organizations with readiness to conduct GHG inventory ....." ) and require confirmation of the "readiness" by the successful experience in energy saving and environmental project implementation.

Currently, a number of regions seem to be very promising for the work in 2000. Naturally, these are very preliminary considerations only.

Chelyabinsk Oblast - large and stable industrial region, good experience in energy saving projects and definite willingness of the regional administration to participate in the international GHG emission reduction, good experience in work with CENEF, good workshop capacity.

Pskov Oblast - relatively small region which can successfully complement two other large regions, definite willingness of the regional administration to participate in the international GHG emission reduction, the work can be done by small expenses and quite quickly.

Sakhalin Oblast - the only region of the Russian Far East, where the work can be successfully done in 2000; good experience in work with CENEF; good current information basis for GHG emission inventory; the region is a quite large and has a great potential for future development.

Khakassiya Republic – middle-scale, but actively developing region of the Eastern Siberia; one of the largest aluminum plant of the World; definite willingness of the regional administration to participate in the international GHG emission reduction projects; possibility of attracting resources of WWF that carries out a complex of environmental protection works in the region.

Among the other regions of Russia that could be considered as potential participants of work in 2000 are (by alphabet): Nizhny Novgorod, Perm', Samara, and Sverdlovsk Oblasts.

It is likely that selection of the regions and preparation of the next stage of project implementation will take several months and active inventory works can start in the beginning of summer. The total time of this work in a region can be the same as in Novgorod region (about 6 months), however it is possible to suggest a time lag in start of the work in different regions or a more sophisticated multi-stage scheme.