



Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia

A.A. Baklanov (1), E.P. Gordov (2,4), M. Heimann (3), M.V. Kabanov (4), V.N. Lykosov (5), A.A. Onuchin (6), V.V. Penenko (7), P.Yu. Pushistov (8), A.Z. Shvidenko (9), E.A. Zakarin (10)

(1) Danish Meteorological Institute, Copenhagen, Denmark, (2) Siberian Center for Environmental Research and Training, Tomsk, Russia, (3) Max-Planck-Institute for Biogeochemistry, Jena, Germany, (4) Institute of Monitoring of Climatic and Ecological Systems SB RAS, Tomsk, Russia, (5) Institute for Numerical Mathematics RAS, Moscow, Russia, (6) SB RAS Institutes Forest SB RAS, Krasnoyarsk, Russia, (7) Institute of Computational Mathematics and Mathematical Geophysics, Novosibirsk, Russia, (8) Ugra Research Institute of Information Technologies, Khanty-Mansiisk, Russia, (9) International Institute for Applied Systems Analysis, Laxenburg, Austria, (10) KazGeoCosmos, Almaty, Republic of Kazakhstan (alb@dmi.dk / Fax: +45 3915 7460 / Phone: +45 3915 7441)

The FP6 Project “Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia” (Enviro-RISKS) strategic objective is to facilitate elaboration of solid scientific background and understanding of man-made associated environmental risks, their influence on all aspects of regional environment and optimal ways for it remediation by means of coordinated initiatives of a range of relevant RTD projects as well as to achieve their improved integration thus giving the projects additional synergy in current activities and potential for practical applications. List of Partners includes 3 leading European research organizations, 6 leading Russian research organizations (5 - located in Siberia) and 1 organization from Kazakhstan. Additionally several Russian and European research organizations joined to the Project as Associated Partners.

Scientific background and foundation for the project performance is formed by a num-

ber of different levels RTD projects carried out by Partners and devoted to near all aspects of the theme. The set comprise coordinated/performed by partners EC funded thematic international projects, Russian national projects and other projects performed by NIS partners.

Among main activities, aimed at realization of the Enviro-RISKS objective, are development and support of the Project web portal and environmental information distributed database and search for synergy between the different projects on Siberian environment and elaboration of recommendation for new Projects. Also within the project tasks is facilitation to development of Siberia Integrated Regional Study (**SIRS**, <http://sirs.scert.ru/>), which currently is one of the NEESPI regional mega-projects and educational activity aimed at preparation of young scientists ready to join the professional community.

Siberia environment has been subjected to serious man-made transformations during last 50 years, whose negative consequences might be amplified by regional manifestations of global change. Say caused by deforestation (cutting and forest fires) variations in Siberian rivers runoffs and wetland regimes might interfere with change of atmospheric circulation in the region, which varies forest fires frequency, flambeau lights and losses of gas and petroleum during their transportation vary regional atmosphere composition and its radiation properties, etc. These regional problems are typical for number of NIS and for near all Northern countries.

To elaborate solid scientific background and understanding of man-made associated environmental risks, their influence on all aspects of regional environment and optimal ways for it remediation, which is required to get practical results in enhancing of environment and diminish environmental risks, major **Thematic Focuses** were selected and relevant Working Groups established. Three Thematic Focuses/Groups consider major risks inherent to Siberia environment. These groups (with their leaders) are the following:

1. **Atmospheric Pollution and Risks** (Alexander Baklanov and Vladimir Penenko),
2. **Climate/Global Change and Risks** (Martin Heimann and Vasily Lykosov), and
3. **Terrestrial Ecosystems and Hydrology and Risks** (Michael Kabanov and Anatoly Shvidenko).

The forth Focus has a generic nature and is devoted to:

1. **Information Systems, Integration and Synthesis** (Evgeny Gordov and Edige Zakarin).

The working groups also form a basis for organization of the thematic Expert Groups, which are elaborating practical recommendations for coordination of new projects on Siberia environment initiated by Partners.

Quite recently first versions of Reports summarizing Focus groups findings were prepared and soon will be published as a DMI Report. Among major results obtained in course of this activity are:

- Performed by DMI with Partners long-term simulation of atmospheric transport and deposition patterns from sources of continuous anthropogenic sulphates and radionuclides emissions located in the Siberian, Kazakhstan, Ural, and other geographical regions (**Atmospheric Pollution and Risks**);
- Analysis of climatic projections for the region performed on the basis of CMIP Program numerical experiments (**Climate/Global Change and Risks**);
- Determination of major risks for ecosystems and hydrology caused by regional manifestations of Global change (**Terrestrial Ecosystems and Hydrology and Risks**); and
- Development and launching the bilingual (Russian and English) Enviro-RISKS Project web-portal (<http://risks.scert.ru/>), which is an information resource on general environment issues adjusted also for usage in education process and giving an access to environmental information and basics on environmental monitoring and management (**Information Systems, Integration and Synthesis**).