

The Russia Air Management Program's (RAMP) goal was to improve national institutions, policies, and practices for air quality management in Russia. RAMP demonstrated the application of potential air program improvements in the pilot city of Volgograd and worked to facilitate implementation of selected elements of the pilot project in other areas of Russia using training, technology transfer, and public awareness. Although RAMP's goal was the demonstration of air quality management techniques, it also resulted in measurable reductions of health-related pollutants in Volgograd. Because of the implementation of low cost measures there was approximately a 10-12% improvement in air quality.

The demonstration and the evaluation of American air quality management approaches has potentially given Russian environmental officials some new tools in their efforts to improve air quality. These are listed below and discussed further in the component sections which follow.

LOW COST/NO COST MEASURES

- In-depth source assessments for nine stationary sources were conducted in Volgograd.
- Detailed cost estimate reports were prepared for the Red October Steel Mill, the silica brick materials plant and the Volgograd aluminum plant.
- Enterprises in the "Triangle" area successfully implemented a number of low cost/no cost measures with resulting emission reductions. For example, Volgograd Aluminum is reducing fugitive emissions from plant roads through the use of paving and a regular water spraying program and the silica building materials plant has implemented a new process for the manufacture of wall materials using waste byproducts from the Khimprom plant, a chemical manufacturing facility. Once all recommendations are implemented for these three enterprises, it is estimated that harmful emissions will be reduced by 35%.
- Technical guidance on low cost/no cost measures for several source categories was developed and disseminated to local environmental agencies throughout Russia.
- Precast delta control equipment was developed and tested at the Red October Steel Mill in Volgograd. It is hoped its application to electric arc furnaces in steel mills in other parts of Russia will eventually be routine. The precast delta substitutes for refractory bricks and will reduce energy consumption, fugitive emissions and furnace down-time.

EMISSIONS INVENTORY AND EMISSIONS FACTORS

- An emissions inventory was developed for key point and area sources in Volgograd.
- Source testing programs in Volgograd and St. Petersburg were coordinated to ensure that data of sufficient quality were collected to generate emission factors from the source testing results.
- Final emission estimates were made and submitted to the RAMP strategy development component to allow for modeling of the air basin in northern Volgograd (the "Triangle").

EMISSIONS TESTING

- Formal emission testing procedures and guidance were established. Laboratory methodologies for sampling analysis and data evaluation were improved in conjunction with the acquisition of the US AID Commodities Import Program (CIP) equipment.
- A visible emission program was developed, certified and tested, first in Volgograd and now in other parts of Russia, including a certification program for visible emissions inspectors. This is the first non-health based standard in Russia.
- As part of the CIP program, the Volgograd agency received two smoke generators to be used in training and certification of inspectors.
- The use of technology-based standards in other countries was reviewed and their applicability assessed for use in Russia.

COMPLIANCE AND ENFORCEMENT

- Russian inspectors, enterprise environmental personnel and State Committee personnel have been trained and certified for visible emissions on several occasions, both in Russia and the United States.
- Russian inspectors and enforcement officials have had detailed discussions with their American counterparts on US enforcement requirements and procedures to see what American methods might be transferable to Russia.

AMBIENT MONITORING

- New air monitoring and laboratory analysis equipment was provided by the CIP. It has been installed and used during the summer saturation study.
- Several small scale saturation studies were conducted to profile PM-10 impacts in Volgograd. These studies helped to train Russian technicians in American methods, identified operational and logistical features and problems associated with these kinds of networks, and provided useful PM-10 data for design of future studies.
- An intensive summer air quality characterization study was conducted in the northern sector of Volgograd, with more limited characterization of impacts in the southern sector. The study generated approximately 500 PM-10 data points, with a subset of 200 submitted for elemental analyses. Together with source production and source test information, these data provided the basis for preliminary source apportionment and context analyses.
- A national air quality trends report for the general public was developed and published by Main Geophysical Observatory in St. Petersburg.
- The development of a pollutant standards index for Russia was initiated.
- New emissions monitoring and related laboratory analysis equipment acquired through the CIP program was installed and put into operation.

STRATEGY DEVELOPMENT

- As other components completed their work, control strategy alternatives for several enterprises in the “Triangle” region of Volgograd were developed. These analyses showed the impacts of both low cost and high cost measures on enterprises in this area, making it possible to develop a multi-source strategy for the area.

LEGAL TASK FORCE AND LEGISLATION

- Legal and regulatory changes needed to implement specific RAMP projects were identified.
- The Legal Task Force developed a plan to legally enable the implementation of the successful elements of the Volgograd pilot for visible emissions to Russia-wide application. In particular, a certification program for visible emissions inspectors was established.
- Several successful elements of RAMP were introduced into draft legislation.

RISK ASSESSMENT

- Emission inventory results were combined with meteorological data to make estimates of health risk associated with emissions from various sources. Strategy options, including both low cost and high cost measures, were then analyzed.

TRAINING AND PUBLIC PARTICIPATION

- A regional Center for Environmental Training (CET) was established in Volgograd. The CET has developed several original courses, including an air quality management course. The CET has developed a pool of teachers and facilitators who are available to serve the Volgograd region and ensure that the lessons learned from RAMP can be replicated elsewhere in Russia.
- The CET provides courses in air and environmental management for public officials, non-governmental organization (NGOs), enterprises, research and academic institutions, and the general public. Many courses utilize US interactive teaching methodologies while incorporating Russian content, regulations and examples.
- In the short time the CET has operated, it has offered nearly 20 courses to approximately 400 participants. These include US EPA courses adapted to Russian needs as well as newly written courses.
- The Public Participation Task Force and the CET have combined to offer a children’s environmental class. This class combines classroom presentations with visits to enterprises and includes the demonstration of a model showing the environmental effects of an enterprise on its surrounding terrain.
- The Public Participation Task Force made a number of small grants for citizen projects, including the cleanup of a natural spring, tree-planting and the compilation of a directory of area environmental organizations.
- An entire issue of a Russian air pollution journal was devoted to the results and highlights of the RAMP project.

“The program will be implemented through a people-helping-people approach that relies on substantial involvement by both US and Russian policy and technical staff.”

BACKGROUND

The initial planning document for the Russia Air Management Program (RAMP) was completed by US EPA's Office of Air Quality Planning and Standards (OAQPS) in collaboration with the Russian Federation under the auspices of the World Bank, with assistance from the US Agency for International Development. The document was completed in May 1993, and became the blueprint for RAMP's implementation. The cooperative effort put forth in creating the planning document paid dividends during the course of the project.

The RAMP was designed to have three objectives: (1) national rapid assessment, (2) the Volgograd pilot program, and (3) the effort to strengthen the federal air quality management capabilities:

Rapid Assessment - The first activity was to evaluate and prioritize 20 Russian cities for future action, based on their emissions, air quality levels, and exposed populations. Some supplemental monitoring equipment was provided to these cities and each was visited by a team of Russian experts. The assessment built upon reports already prepared by Hydromet, the Russian agency responsible for air quality monitoring and modeling. The World Bank requested assessment results for inclusion in their Environmental Action Plan (EAP) for Russia.

Pilot Program - A pilot city was needed to provide a practical demonstration and evaluation of control strategy alternatives. Volgograd represented a reasonable choice and was agreed upon by all participants. The program in Volgograd began with a short-term study to characterize air quality and the sources in the area. Based on the data base, analyses, and policy options that were jointly developed, low cost control measures for major stationary sources were identified (and implemented as resources permitted) and a specific cost-effective 3- to 5-year control strategy for completing the cleanup of the air in the Volgograd region was planned and partially implemented.

Federal Program - Throughout the program in Volgograd, close coordination and involvement was maintained with the Ministry (later called the State Committee) and selected other oblasts so that the information learned and decisions made in Volgograd could be used by the Ministry and other oblasts to determine possible changes to the federal (and oblast) approaches to air quality management. Through training and technology transfer, the appropriate changes could then be implemented Russia-wide. Examples of this include national legislation and national standards, in particular for the visible emissions program.



Volgograd, Russia

ACCOMPLISHMENTS

The tenets of the RAMP are worth revisiting six years later. It is clear that while the planning document charted a course which was altered by intervening events, the basic principles guiding RAMP’s design and eventual course remained intact. The planning program was implemented through a people-helping-people approach that relied on substantial involvement from US EPA

air policy and technical staff in OAQPS, US EPA Regional Offices, and other US EPA Headquarters offices. There was substantial involvement by Russian technical and policy staff in conducting analyses to support program changes and in developing revisions to Russian guidance, policy, and legislation.

Program managers from US EPA, the Russian Ministry, and the Volgograd Environmental Services Administration (VESA) made up the RAMP management team. The planning document, and ultimately its implementation, consisted of ten or so “components”, each of which had a detailed plan in the context of the US air quality management structure. This “plan-within-a-plan” had very specific tasks which were delineated as Russian led, US led, or jointly led, to optimize responsibility and accountability.

DOCUMENTATION

“Russian Air Quality Management Pilot Program,” by Thompson G. Pace (US EPA) and Vladimir Rezhchekov (Ministry of Environment - Russian Federation), October 30, 1992.

“RAMP Draft Planning Document (English and Russian language versions), US EPA OAQPS, May 1993.

“Air Quality Management in Belarus and the United States,” presented by Thompson G. Pace at the Belarus National Environmental Strategy Conference, Minsk, Belarus, September 1993.

“Russia Air Management Program,” presented by Svetlana Kosenkova, Stanislav Markin, and Thompson G. Pace at the World Clean Air Conference, 1995.

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