Evaluation and Identification of Priority Air Pollutants for Environmental Management on the Basis of Health Risk Analysis in Russia

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Russian Health Risk Analysis 1998 - 2002

- Health risk resulting from industrial pollution in Russia was analyzed in up to 20 cities(Volgograd, Novokuznetsk, Perm, Angarsk, Krasnouralsk, Ekaterinburg, Samara, Novokuibyshevsk, Velikii Novgorod, Voronezh, Serpukhov, Moscow, Klin, Cherepovets, Verkhniaa Pyzhma, Orenburg and others
- Carcinogenic and non-carcinogenic risk;
- Stationary and mobile pollution sources;
- From air pollution to multimedia health risk analysis based on USEPA methods and standards.

Air Pollution Management in Russia

- Based on the Soviet system of standards that declared 100% of human health protection but was not enforced;
- Too many controlled pollutants;
- No prioritization of pollutants and polluters.

Programs and Limitations

1980's	• Ambient and Emission standards • Complicated system of pollution permits with too many pollutants
1991	• Pollution fees to create environmental funds • Environmental funds were small, fees did not keep pace with inflation ➢ IMF criticizes "off-budget" funds

Lessons learned

- About 90% of human health risk came from criteria pollutants such as TSP, SO_2 and NO_x;
- Major pollution comes from fossil fuel combustion;
- Inadequate monitoring system is inadequate – lacking the ability to measure PM10 and PM2.5 in the air;
- Inadequate air pollution management and control.

The Scale of Health Risk from Air Pollution in Russia

- Upper estimate (2004): 219-233 thousand (15-17% of total mortality) for 95 million of urban population in Russia;
- Volgograd (1997): 2,670 per 1 million population or 20% of total mortality;
- Our estimate (2004): 85 thousand (10% of total mortality) for 65 million living in highly polluted urban areas in Russia.

Air pollution related mortality (CP)
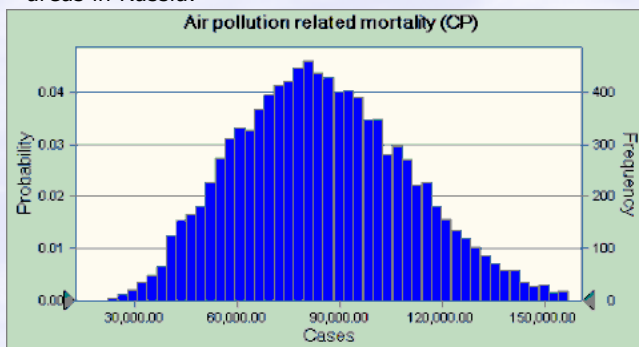
Economic Valuation and Management

- 3-7% GDP;
- 30-40% of air pollution related mortality could be prevented by low-cost options;
- Despite the health and economic significance of the mortality levels there has been no adequate policy response. Environmental regulation in Russia has weakened over the last decade;
- One possible option for Russia is to use revenues from carbon allowances trading to support CO_2 reduction projects with the highest ancillary benefits of conventional pollution reduction.

Health risk analysis - implementation

- The Order of the Senior Public Health Doctor of RF and Senior Environmental inspector of RF from November 1997 (№ 25   и № 19-0-11/530) "How to use health risk assessment for environmental and public health management in RF"
- Recommendations of Hearings in Duma to use health risk analysis for air pollution management before any investment in projects with environmental impact s(November, 2001);
- Decision of Russian Duma Committee to use health risk analysis for environmental management (February, 2002);
- In Article 2 of the Federal Act on Sanitary-Hygienic Wellbeing of Population it is ordered to use sanitary-hygienic monitoring (March, 1999). Government of RF adopted in July 2000 the Statement on sanitary-hygienic monitoring, where it is ordered to use health risk analysis;
- In 2004 on the order of Ministry of Public Health Russia officially adopted Guidelines for Health Risk Analysis from Air Pollution

Next Steps and Challenges

- From risk analysis to risk management:
  - ➢ Convince top level decision-makers that environmental degradation could become an important barrier for steady economic growth;
- Methodology of risk analysis:
  - ➢ From TSP to PM2.5. Development of adequate monitoring and reporting practice;
  - ➢ Adjustment of concentration-response function for high concentrations of fine particulates;
- Methodology of economic valuation:
  - ➢ No reliable WTP study for NIS countries. Use of benefit transfer approach.

EPA Capacity Building Project

The project will address most of these challenges and provide training for Russian and Ukrainian experts.