

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

What **UNECE** does for you



...UNECE works
at cleaning the air
you breathe

In the 1970s, Northern Europe was badly affected by acid rain, a problem caused by human activities in the continent as a whole. To combat acid rain and, more generally, the detrimental effects of air pollution on health and the environment, a Convention on Long Range Transboundary Air Pollution was created in 1979 under the aegis of UNECE.



Achievement: How do we make a difference?

The past few decades have seen much progress: sulphur emissions have declined by more than 60 per cent since 1980, emissions of nitrogen oxides (NO_x) have been cut by 25 per cent since 1990, emissions of volatile organic compounds (VOCs) are down 35 per cent, and ammonia emissions are almost 20 per cent lower than in 1990. Ozone peaks and photochemical smog are reduced. The Convention has been instrumental in the decrease of all these pollutants throughout the region.

The Convention on Long Range Transboundary Air Pollution (CLRTAP) was the first international legally binding instrument to deal with problems on a broad regional basis.

With a total of 51 ratifications out of 56 UNECE member countries, the Convention has established the general principles of international cooperation for air pollution abatement, and has developed an institutional framework uniting research and policy.

The Convention: Why was it created?

The history of the Convention can be traced back to the 1960s, when scientists demonstrated the link between sulphur emissions in continental Europe and the acidification of Scandinavian lakes. The subsequent acid rain witnessed in Europe caused nations to pay more attention to the impacts of air pollution. Between 1972 and 1977, studies proved that

air pollutants can travel several thousands of kilometres before they cause damage. Cooperation at the international level was therefore necessary to solve these problems. In response the Convention on Long-range Transboundary Air Pollution was elaborated and signed by 34 Governments and the European Community in 1979. Parties shall endeavor to limit and, as far as possible, gradually reduce and prevent air pollution, including long-range transboundary air pollution. Parties develop policies and strategies to combat the discharge of air pollutants through exchanges of information, consultation, research and monitoring.

The Protocols : What are the goals?

The convention is extended by 8 protocols, all of which are in force. The first, the 1984 Geneva Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP Protocol) established the international cost-sharing of a monitoring programme to review and assess air pollution in Europe. The Convention has formed subsequent protocols to reduce a wide range of air pollutants. The most recent is the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (2005).

...**UNECE** works
at cleaning the air
you breathe



Pollutants covered by the Protocols

- Sulphur dioxide (SO₂)
- Nitrogen oxides (NO_x)
- Volatile organic compounds (VOCs)
- Ammonia (NH₃)
- Persistent organic pollutants (POPs)
- Heavy metals (cadmium, lead and mercury)

Impact: How do we assess the effects of air pollution?

One of the great strengths of the Convention is its science base and the unique way in which the science informs policy developments. In addition to EMEP's effective research and monitoring network, the Convention is extended by a series of International Cooperative Programmes (ICPs) to monitor and address the effects of air pollution, such as:

Forests

ICP Forests offers a network of more than 6,000 monitoring stations which provide data on tree nutrition, ambient air quality, atmospheric deposition, and ground vegetation amongst others. The monitoring is done in close cooperation with the European Commission.

Vegetation

ICP Vegetation focuses on the impacts of ozone on crops and vegetation, and the assessment of atmospheric deposition of heavy metals to crop plants and mosses. The ICP Vegetation also conducts surveys on heavy metal and nitrogen concentrations in mosses at over 6,000 and almost 3,000 sites, respectively.

Materials

The ICP on Effects of Air Pollution on Materials aim is to evaluate the effects

of air pollutants and climate parameters on the corrosion of important materials, including Historic and Cultural Monuments (ICP Materials). The programme evaluates the effects of several pollutants simultaneously, develops dose-response functions between pollutant exposure and corrosion, and establishes trends in corrosion and pollution.

Health

The Joint Task Force on the Health Aspects of Air Pollution was set up in 1998 with the World Health Organization's European Centre for Environment and Health (WHO/ECEH). It addresses growing concerns about the impacts of long-range transboundary air pollution on human health. The work on the effects on human health of air pollutants is based on the knowledge gathered from relevant organizations.

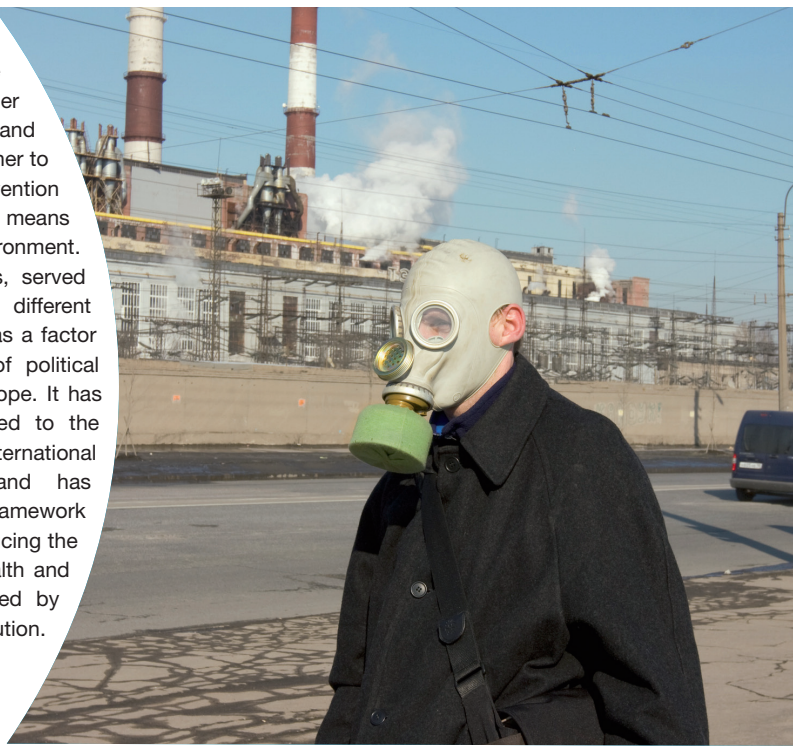
Influence: Why is the Convention important?

The Convention is a unique example of a cooperative venture that brings together countries, regions and continents to act together to clean the air. The Convention is one of the central means for protecting our environment. It has, over the years, served as a bridge between different political systems and as a factor of stability in years of political change in Eastern Europe. It has substantially contributed to the development of international environmental law and has created an essential framework for controlling and reducing the damage to human health and the environment caused by transboundary air pollution.

It is a successful example of what can be achieved through intergovernmental cooperation. Thanks to the Convention and its protocols, the air that we breathe is much cleaner now than a decade or two ago.

Climate Change & Air Pollution: Looking for synergies

Air pollution and climate change are closely connected in a number of ways. Both are mostly caused by the burning of fossil fuels. Sulphur and nitrogen oxides (NO_x) cause air pollution, and carbon dioxide (CO₂) contributes to global warming. Subsequently, pollutants such as NO_x, VOCs and methane, contribute to both air pollution and climate change. Ground-level ozone and black carbon aerosols are both air pollutants and act as warming agents. Effects are also linked, as biodiversity is threatened by climate change (rising temperatures and changing precipitation patterns) and air pollution (acid and nitrogen deposition). Actions



to decrease their concentrations in the atmosphere should provide opportunities not only for significant air pollution benefits (e.g. health and crop-yield benefits), but also for rapid climate benefits, by helping to slow global warming and to avoid crossing critical temperature thresholds.

An Integrated Approach

The centre for Integrated Assessment Modeling, which operates under EMEP, developed the GAINS model, which provides insights into future integration of policies for both air pollution and climate change.

The goal is to develop co-benefits strategies, as enhanced collaboration and communication between key climate change and air pollution stakeholders is considered essential at the international, national and local scales; these may include government agencies and industry.

Tomorrow: What does the future hold?

Further reductions of the polluting emissions are still required, beyond 2010. The Convention continues to evaluate future measures to reduce the effects of air pollution and to identify emerging issues. The Convention will continue to strengthen pollutant targets, and will utilize new technological development and research techniques to establish these standards. It will continue to strengthen implementation in the region, with a focus on the Eastern Europe, Caucasus and Central Asia. In addition, it will seek cooperation and common actions with other international conventions working in similar areas. A goal of the Convention is to consider aspects of long range air pollution on the hemispheric and global scales.

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

Information Service

Palais des Nations
CH - 1211 Geneva 10, Switzerland

Phone: +41 (0)22 917 44 44

Fax: +41 (0)22 917 05 05

E-mail: info.ece@unece.org

Website: www.unece.org