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EEA Support to Air Quality Policy in Europe

Steinar Larssen

Presented at
WHO Workshop
"Air quality and health in Eastern Europe, Caucasus and Central Asia"

Organised by:
World Health Organization, Regional Office for Europe

Held in:
St. Petersburg, Russian Federation
13-14 October 2003

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EEA Support to Air Quality Policy in Europe

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1 Abstract

This presentation at the WHO workshop had the objective to summarise EEA's and ETC-ACC's strategy and activities in the field of air quality, and indicate the role that EEA could play in the further process of assisting the EECCA countries in achieving the goal of reducing the health effects resulting from high air pollution in the region.

The presentation covered the topics: EEA network, strategy and priorities; air pollution indicators; tools for data reporting, data flows and access to data; air pollution assessment reports for Europe; summary of the Kiev report findings regarding local air pollution; perceived future needs in EECCA countries regarding data and assessments of air pollution, and possible EEA involvement.

The EEA priority on international cooperation regarding "improving information capacities and flows in countries in Eastern Europe, Caucasus and Central Asia" was mentioned. The DPSIR (Driving forces – Pressures – State – Impact – Response) framework for assessments and support to policy development was covered, as well as the use of core indicators in the development of the "Air Pollution in Europe 1990-2000" assessment report. Key findings in that report were presented.

The EEA-ETC/ACC country support tools were presented (Emissions related tools ColletER, ReportER, EstimatER, and air quality related tools EUROAIRNET, DEM, AIRBASE, AIRVIEW).

The key findings of the Kiev Report regarding air pollution in EECCA countries were summarised, including its conclusions that "effects on health cannot currently be quantified", and that the information available is not sufficient to foresee to what extent urban air quality can be expected to be improved towards 2010, if at all. The use of air quality management tools for analysing the situation and future prospects in cities, was advocated. Future needs for the improvement of assessments and projections of local air pollution in EECCA cities include improved monitoring (both networks and technically/methods), establishing larger

networks of cities and routinely data reporting to central data bases, improved urban emission inventories and use of AQM systems.

Regarding the role of EEA, it was pointed out that guidance/advice on development and use for tools for data reporting and flow could potentially be very important, under which EECCA countries could benefit from the large expendence of EEA-ETC/ACC. It was pointed out that EEA supports the activity of UNECE working Group on Environmental Monitoring (WGEM) towards EECCA countries as for future possibilities, it was mentioned that some way of listing EECCA countries to the EEA network could be foreseen for the future, dependent upon EEA strategy development and the need as seen from the EECCA countries.

2 Provisional Programme

WORLD HEALTH ORGANIZATION **REGIONAL OFFICE FOR EUROPE** WELTGESUNDHEITSORGANISATION **REGIONALBÜRO FÜR EUROPA**		ORGANISATION MONDIALE DE LA SANTÉ **BUREAU RÉGIONAL DE L'EUROPE** ВСЕМИРНАЯ ОРГАНИЗАЦИЯ ЗДРАВООХРАНЕНИЯ **ЕВРОПЕЙСКОЕ РЕГИОНАЛЬНОЕ БЮРО**

WHO Workshop "Air quality and health in Eastern Europe, Caucasus and Central Asia"

St. Petersburg, Russian Federation
13-14 October 2003

PROVISIONAL PROGRAMME

Monday, 13 October 2003

9:00 Opening (S. Chicherin; M. Krzyzanowski)

9:10 Adoption of agenda and programme; selection of chairperson and rapporteur

9:15 Objectives and expected outcome of the meeting (M. Krzyzanowski)

9:30 Health impacts of particulate matter, ozone and nitrogen dioxide: recent WHO assessments (M. Krzyzanowski)

Review of national policies and actions on air quality in EECCA

a. Basic legal instruments, including air quality standards;
b. Systems of air quality assessment, control and management;
c. Air quality and population exposure in cities.

10:00 Armenia (to be announced)

10:15 Azerbaijan (to be announced)

10:30 Coffee Break

10:50 Belarus (to be announced)

11:05 Georgia (to be announced)

11:20 Kazakhstan (to be announced)

11:35 Kyrgyzstan (to be announced)

11:50	Moldova (to be announced)
12:05	Russian Federation (to be announced)
12:20	Lunch Break
14:00	Tajikistan (to be announced)
14:15	Ukraine (to be announced)
14:30	Uzbekistan (to be announced)
14:45	Experiences of PM monitoring in Russia (S. Voronin)
15:00	On the harmonisation of national and international approaches in AQ assessment and protection of population health in Russia (S. Chicherin)
15:20	Coffee Break
15:40	Summary discussion on national policies and actions on air quality in EECCA
17:00	Adjourn

Tuesday, 14 October 2003

Review of approaches to set air quality policies and actions in the European Union and EU accession countries.

9:00	Existing and future Air Quality Policy in European Community (J. Schneider)
9:30	Air Quality Policy in Germany (O. Schall, Ministry for the Environment)
9:50	Air Quality Policy in Latvia (N. Kadikis)
10:10	Air Quality Policy in Lithuania (J. Molis)
10:30	Coffee Break
11:00	Implementation of EU Air Quality legislation in the Czech Republic (I. Fiala, Czech Hydromet Institute)
11:20	European Environment Agency's support to AQ policy in Europe (S. Larsen, NILU)

11:40 WHO Quality Assurance and Control Activities for Air Quality/ Harmonization activities for PM measurements of the EU Joint Research Centre (G. Mücke)

Conclusions and follow up actions

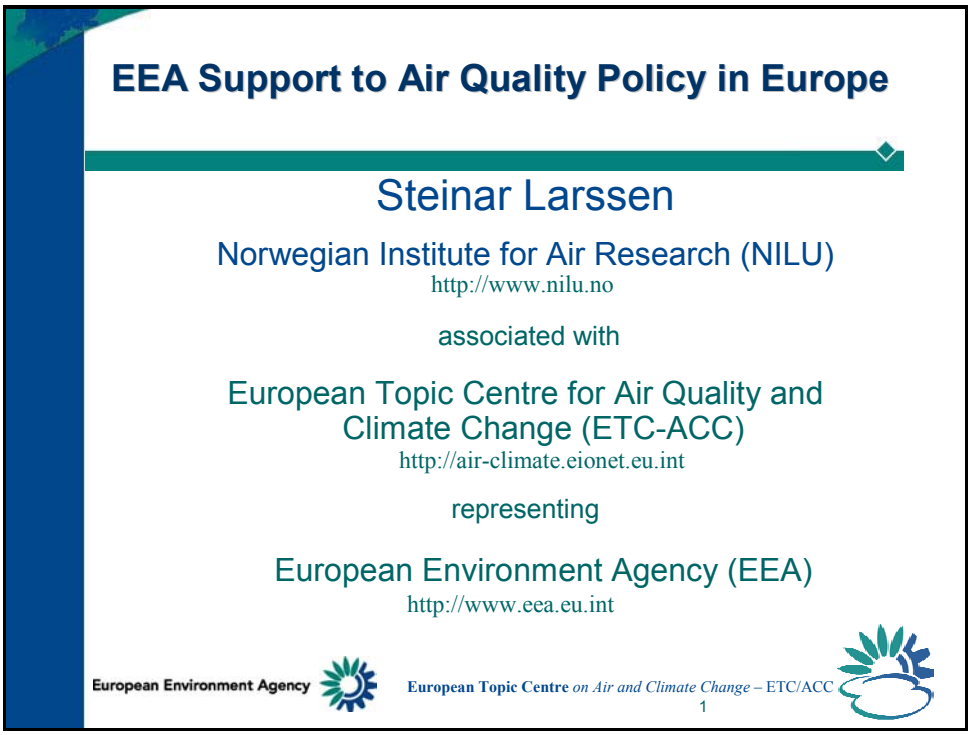
12:00 The way forward (WHO; discussions)

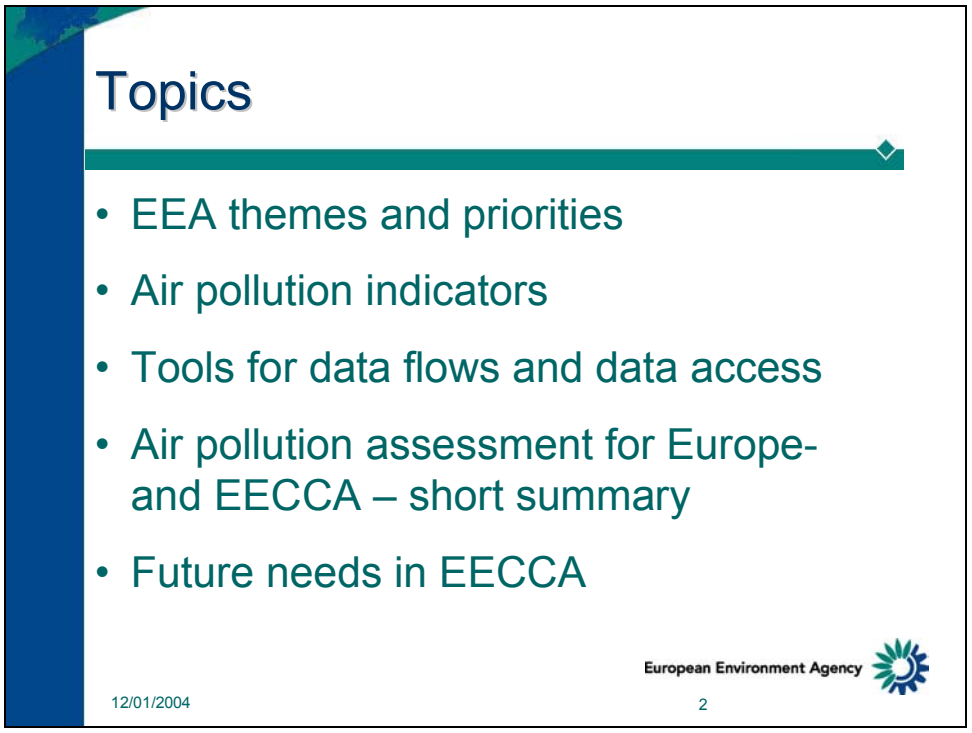
12:30 Lunch Break

14:00 Formulation of recommendations regarding national actions and international collaboration to reduce health impacts of air pollution in EECCA

17:00 End of meeting

3 Presentation





EEA and EECCA Countries

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EEA Main Priorities: Air Quality

- **Protect human health and quality of life**
- **Specific projects will include:**
  - ***Assessments of distance to targets for 2010***
  - ***Assessment of local air pollution***
  - ***Air quality and air emissions monitoring***
  - ***Scenario development***
  - ***Assessment of exposure to air pollutants***

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EEA Network: the EIONET

- NFP — National focal points
- ETCs — European Topic Centres
- ETC-ACC — -Air Quality & Climate Change
- NRCs — National reference centres, air, water,.....

http://www.eionet.eu.int

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EEA priorities on international cooperation

- UN bodies and OECD

- Improving information capacities and flows in countries in Eastern Europe, Caucasus and Central Asia.
  - the Environment for Europe process
  - the 4th pan-European assessment 2007-08

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The EEA Support framework for policy development

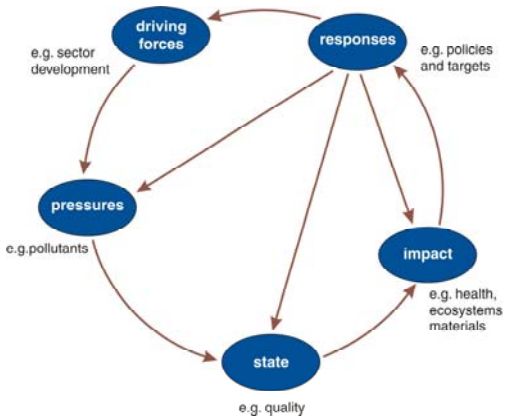
D Driving forces

P Pressures

S State

I Impact

R Response



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EEA Core Indicators

Main objectives

- Suited to support the policy making process
- Facilitate a consistent and stable information basis
- Provide clear guidance to countries on data collection
- Simplify wider international cooperation/ comparisons

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Present EEA indicators, Air pollution

- **Emissions** (Pressure)

  Acidifying: SO_2, NO_x, NH_3

  Particles and precursor gases

  Ozone precursors: NO_x, *VOC etc.*

- **Air quality** (State)

  Area of exceedance, critical loads: *acidity and nitrogen*

  Exceedance of limit & target values O_3, *PM10,* NO_2, SO_2 ,….

  Exposure of crops/ vegetation to ozone

http://themes.eea.eu.int/all_indicators_box

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Present EEA indicators, Air pollution

- **Impact**

  Population exposure

- **Econ. Sectors** (Driving forces)

  Contribution to air quality from economic sectors

  Eco-efficiency (energy efficiency) of economic sectors

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EEA Data flows and Access to data
(managed by ETC-ACC)

Country support tools

Emissions

* ***CollectER, ReportER, EstimateER, COPERT III, etc.***

Air Quality

- Network/station selection: ***EUROAIRNET***
- Data transfer to EC/EEA: ***DEM v6***
- Central data base: ***AIRBASE***
- Access to data: ***AIRVIEW***

http://air-climate.eionet.eu.int/tools

EuroAirnet

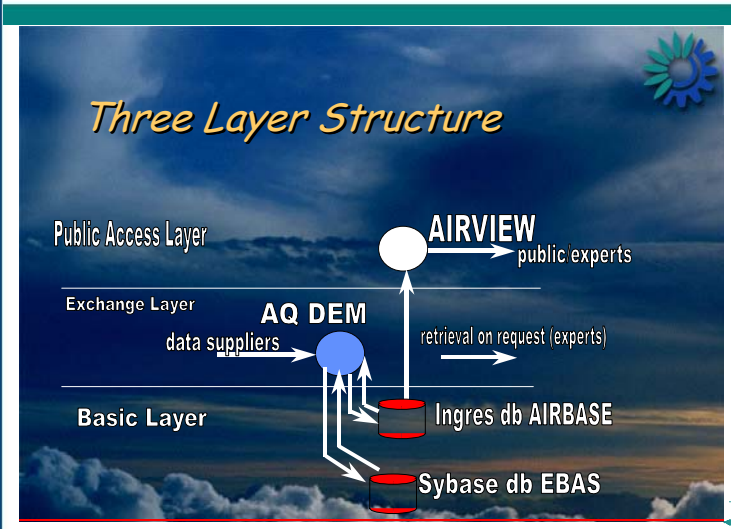
A tool for development of a minimum air quality monitoring network for assessment purpose

Criteria for design of network:

- Selection of areas to be monitored
- Classification of monitoring sites
- Selection of compounds/averaging time
- Quality control and assurance procedures

http://reports.eea.eu.int/search_results?SearchTitle=euroairnet
http://www.nilu.no/niluweb/services/euroairnet/

Airbase – DEM - AirView

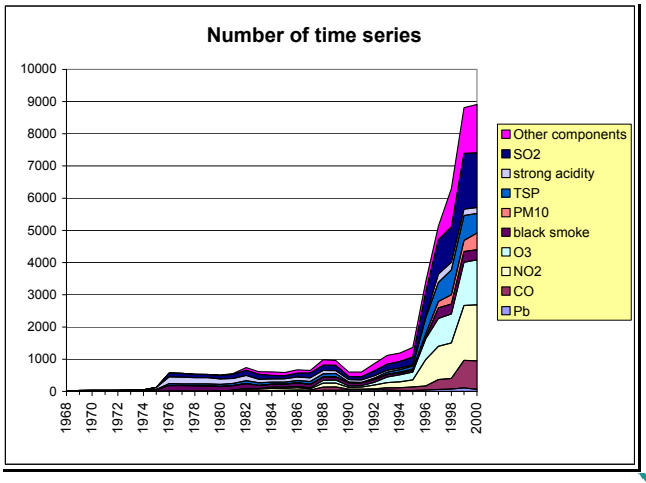


AIRBASE

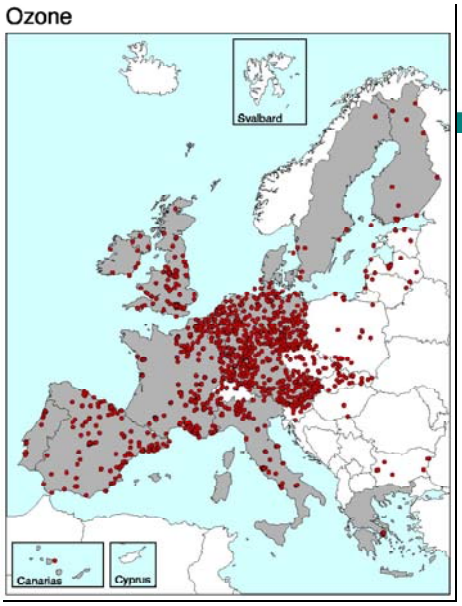
- *Metadata of air quality measurement stations* in Europe (information about networks, stations and measurement configurations)
- *Air quality measurement data* (raw data, statistics) of ca. 30 countries, ca 10,000 time series (annual)

http://air-climate.eionet.eu.int/databases/airbase.html

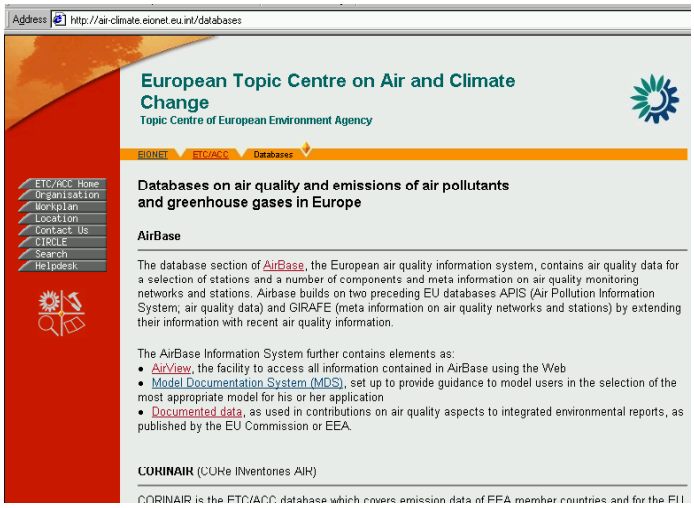
AIRBASE



AIRBASE



ETC-ACC/databases web-page



AIRVIEW

- Facilitates interactive access to AIRBASE data
- Visualisation of data in the form of maps, graphs or tables
- Java based applet application

http://air-climate.eionet.eu.int/databases/airview.html

Data Exchange Module (DEM)

- Facilitates data transmission from the countries to AIRBASE
- PC-application
- MS-Access
- Visual Basic 6.0

http://air-climate.eionet.eu.int/databases/dem.html

EEA Air quality assessments

State & trend report:

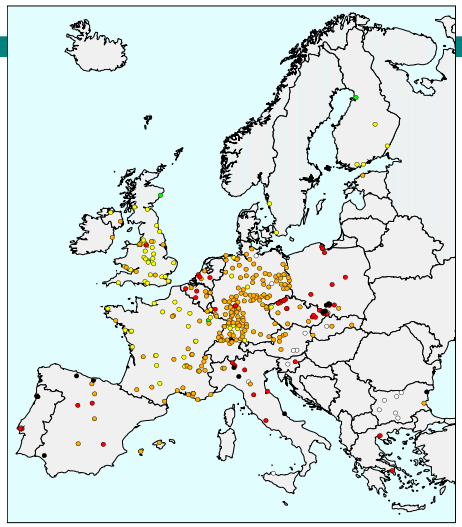
Air Pollution in Europe 1990-2000

Examples, health related pollutants:

- ozone
- PM10

PM10 in EEA countries, 2001

Particulate Matter



MAX36
Urban Background Stations

- Data Coverage < 70 %
- <= LAT
- > LAT and <= UAT
- > UAT and <= LV
- > LV and <= 50 % above LV
- > 50 % above LV

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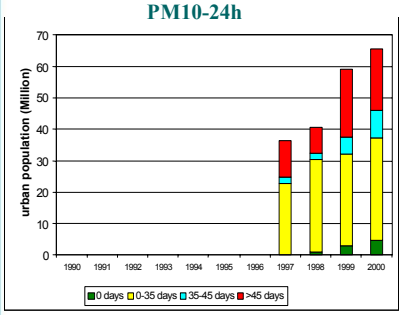
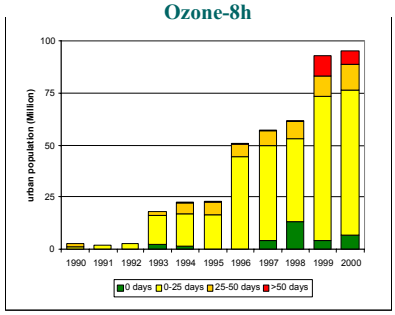
Urban population exposure to air pollutants, EEA 31 countries, - 2000





EEA countries: More than 20 mill people live in cities which are presently monitored, where EU Limit values for Ozone, PM10 and NO_2 are exceeded at monitoring stations

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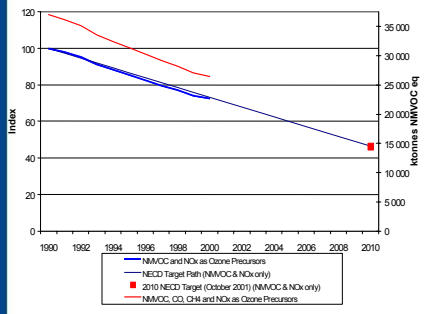
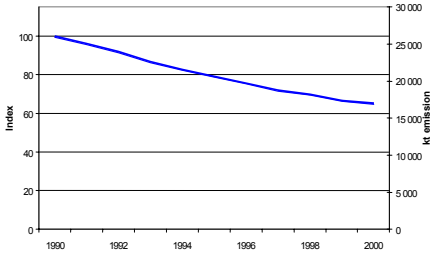
Emission trends

- Ozone precursors
  EU – 15 total
- PM primary + precursors
  EU - 15





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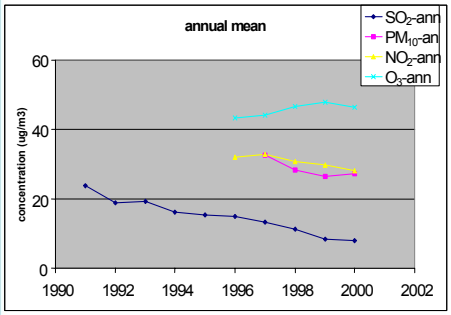
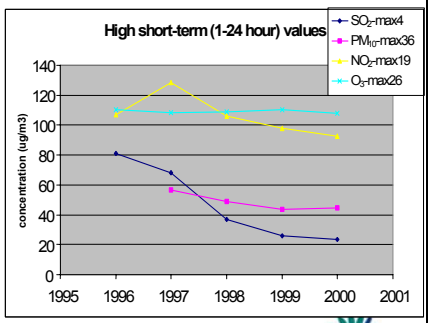
Air pollution tendencies (EEA-wide)

- SO2, NO2, PM10: Air concentration indicator tendencies follow the emissions trends (Roughly!)
- Ozone: Air concentration indicator tendencies: stable or increase, while precursor emissions decrease





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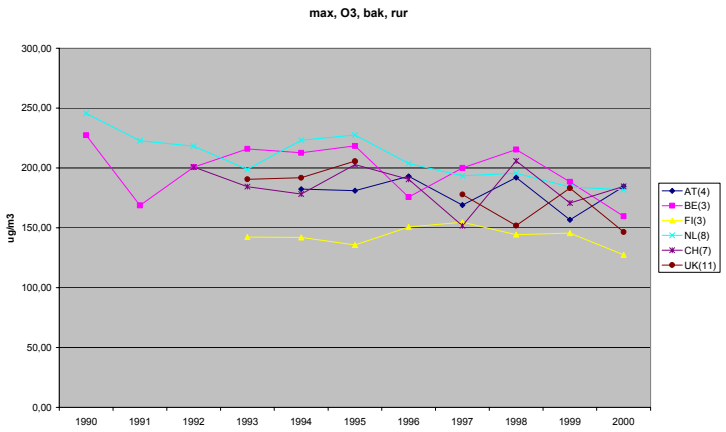
Trends in ozone, maximum 1-hour concentration



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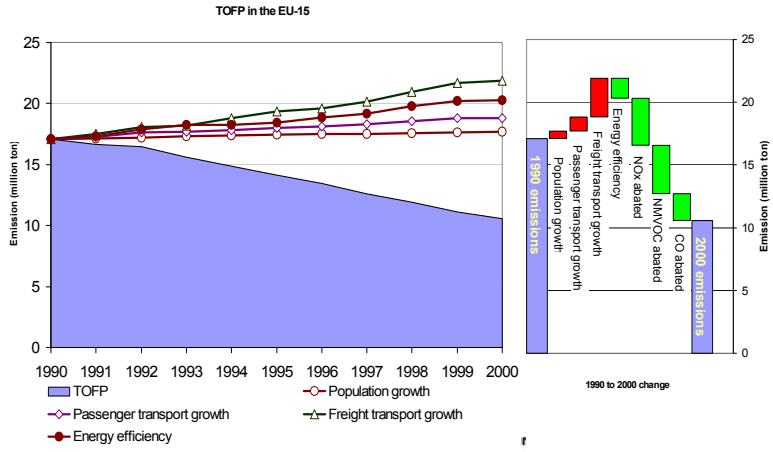
EC Policy effectiveness evaluation

Ozone precursor (TOFP) emissions, EU15



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How is the air pollution situation in Eastern Europe, Caucasus and Central Asia (EECCA) ?

Summary from the "Kiev" report

http://reports.eea.eu.int/environmental_assessment_report_2003_10/en

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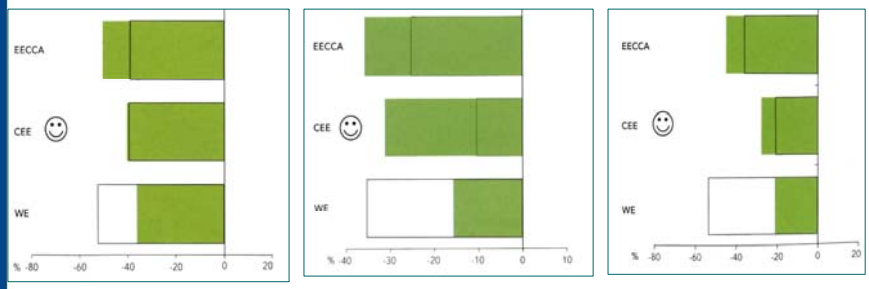
Emissions in EECCA have been reduced since 1990

Acidifying | Eutrophying | O_3 precursors



Source: EMEP/CLRTAP and EEA-ETC/ACC

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Urban air quality in EECCA countries

(from the ”Kiev report”,
Europe’s 3rd environment assessment)

- The transport sector is the main emitter in many large cities
  - old vehicle fleets
  - low quality fuels
  - declining public transport
- Importance of the industrial sector?

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Urban air quality in EECCA countries

- Economic growth will increase the activity, but penetration of new technology will take (long) time
- Lack of complete monitoring data precludes in-depth assessment of local/urban air quality and resulting health effects
- Widespread exceedance of limit values in cities
  Russian Fed. cities, Tbilisi, Dushanbe, Bishkek, Kiev, Chisinau, Almaty, Ashkabat,....

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Urban air quality in EECCA countries

- Acute exposure is extensive (Russian Fed.)
- Limit value exceedances in large industrial centres
  Ust-Kamenogorsk, Ridder, Temirtau, Donetsk, Lutsk, Odessa,….
- **Effects on health cannot currently be quantified**

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Emission and air quality outlook, EECCA countries

- Emission reductions towards 2010 would mainly result from:
  - Cleaner fuels (gasification, vehicle fuels)
  - Economic restructuring
  - Implementation of climate change policies
- Emission volume from the transport sector is not expected to be much reduced
- **How much improvement in urban/local air quality can be expected?**

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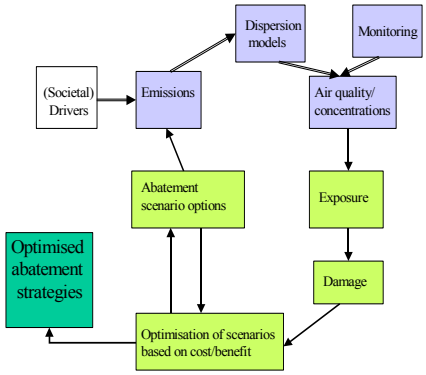
Urban air quality management strategies needed



Air Quality Management Systems (AQMS) exist (PC-based software)

http://aix.meng.auth.gr/saturn/finalreport/n-ch9.pdf

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Future needs for improved air quality management and health assessments in EECCA countries

- Monitoring
  - Reference or equivalent methods
  - More complete time coverage
  - Hourly data
  - More extensive networks (urban)?
- Data reporting routinely to central data base(s)
- Improved urban emissions inventories
- Air quality management systems (AQMS) in some cities

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What can EEA contribute with?

- Provide guidance/advice on tools for network design, data flow, data base (study the web pages)
- Support the EECCA countries in their LRTAP Convention work
- The cooperation on the water issue is more concrete. Local Air Pollution next?
- Next European Env. Report (2007)
- Link EECCA to EEA network???

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Thank you!

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