NEWSLETTER

WHO COLLABORATING CENTRE FOR AIR QUALITY MANAGEMENT
AND AIR POLLUTION CONTROL at the FEDERAL ENVIRONMENT AGENCY, GERMANY

No. 55 - June 2015

EDITORIAL

Air quality and health resolution adopted at World Health Assembly

A landmark resolution on air quality and health has been adopted at the sixty-eighth World Health Assembly on 26 May 2015 in Geneva, Switzerland. The Resolution "Health and the environment: addressing the health impact of air pollution" was carried forward by the delegations of France, Monaco, Norway and Ukraine along with Chile, Colombia, Panama, United States of America, Uruguay and Zambia.

The proposal was developed in consideration that air pollution is the largest single environmental risk and a leading cause of disease and death globally. Every year 4.3 million deaths occur from exposure to indoor air pollution and 3.7 million deaths are attributable to outdoor air pollution.

It is a risk factor for ischemic heart disease, stroke, chronic obstructive pulmonary disease, asthma and cancer. Air pollution's negative effect on health brings an enormous economic burden. A new WHO report released 28 April 2015 reveals that in the WHO European Region alone a staggering US$ 1.6 trillion is the economic cost of the approximate 600 000 premature deaths and of the diseases caused by air pollution in 2010.

Source: Hung Chung Chih / iStock / Thinkstock

The Resolution asks the WHO Secretariat to strengthen its technical capacities to support Member States in taking action on air pollution.Among the actions outlined in the adopted Resolution, Member States are urged to:

- develop policy dialogue, partnerships, and strengthen multisectoral cooperation at national, regional and international levels, taking into account WHO air quality guidelines;
- raise awareness in the public and among stakeholders of the impacts of air pollution on health and opportunities to reduce or avoid exposure, and encourage and promote respetive measures,
- promote clean cooking, heating and lathing technologies and fuels;

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- develop air quality monitoring systems and health registries to improve the collection of data relevant for health risk assessment and surveillance of illnesses related to air pollution;
- take effective steps to address and minimize air pollution from health care facilities, and identify actions by the health sector to reduce health inequities related to air pollution;
- improve cooperation between different sectors and integrate health concerns into all national, regional and local air pollution-related policies.

WHO will report to the sixty-ninth World Health Assembly on the implementation of this resolution and its progress in mitigating the health effects of air pollution, and other challenges to air quality, and to propose a road map for an enhanced global response to the adverse health effects of air pollution.

Further information can be obtained from:
http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/news/news/2015/05/air-quality-and-health-resolution-adopted-at-the-sixty-eighth-world-health-assembly

The Resolution can be found at:
http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_ACONF2Rev1-en.pdf

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ABOUT

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MID-TERM REVIEW OF THE PROGRESS OF WHO EUROPEAN REGION MEMBER STATES IN IMPROVING OUTDOOR AND INDOOR AIR QUALITY

Marie-Eve Héroux

Context

Pioneering the health-in-all-policies approach, the health ministries and environment ministries of WHO European Region Member States, together with many other European stakeholders, have gathered in five ministerial conferences, beginning in 1989, to identify priorities and develop appropriate policies for environment and health. At the latest such ministerial conference, held in Parma, Italy, in 2010, ministers and stakeholders committed themselves to pursuing a set of goals and targets on: air quality; water and sanitation; children's daily environments; chemical safety and asbestos-related disease; climate change; and more.

In 2015, at the so-called Mid-Term Review, Member States met to assess progress in implementing the Parma Agenda and to discuss future directions, in view of the upcoming 6th Ministerial Conference on Environment and Health, scheduled for 2017. As described in a report launched at the Mid-Term Review, substantial progress has been made in several, but not all, domains; policies at the national and international levels have greatly advanced and produced measurable gains, but some indicators remain at levels that are of concern (WHO Regional Office for Europe, 2015a). More efforts are needed to reduce the still high burden of disease due to environmental factors and its unequal distribution among European citizens. This contribution focusses on the progress of WHO European Region Member States in improving outdoor and indoor air quality.

Background

Air quality is the largest contributor to the burden of disease caused by environmental factors. The already strong evidence on the adverse effects on health of ambient air pollutants, such as particulate matter and ozone, has evolved in the last three years. Also, the monitoring and modelling of exposure to air pollution is reviewed continually. In general, indicators of exposure to the ambient air pollutants particulate matter (indicators PM_{10} and $PM_{2.5}$, indicative of particulate matter with an aerodynamic diameter smaller than 10 µm and 2.5 µm, respectively) and ozone (indicator SOMO35, which stands for the sum of ozone means over 35 ppb) in the European Region have not changed substantially over the last few years. In countries in the eastern part of the Region, monitoring is very limited. In most countries, regular monitoring of indoor air pollutant levels in indoor environments where children spend a significant part of their time, such as kindergartens and schools, is not conducted.

The limited data available underscore the need to develop suitable policies to address indoor air quality in facilities for children. The overall compelling scientific evidence and significant burden of disease from air pollution provide convincing arguments for the need to take further action to reduce emissions and improve air quality, as set forth in the Parma Declaration.

Outdoor air quality

Air quality is a key determinant of environmental health. In the WHO European Region in 2012, exposure to air pollution accounted for almost 600.000 premature deaths (WHO, 2014a). These

deaths were due to ischaemic heart disease, chronic obstructive pulmonary disease, lung cancer, and acute lower respiratory infections. Specifically, 482.000 deaths were attributable to ambient air pollution and 117.200 deaths to household air pollution in the WHO European Region. While deaths from ambient air pollution occur in all European countries, regardless of their income level, those from household air pollution are more than five times greater in low- and middle-income countries than in wealthier ones. For major noncommunicable diseases (such as cardiovascular diseases), exposure to air pollution is a more important risk factor than was previously thought.

WHO has been reviewing the state of the science on the health aspects of air pollution under the Review of Evidence on Health Aspects of Air Pollution (REVIHAAP) Project (WHO Regional Office for Europe, 2013) and collecting data on exposure to particulate matter and ozone in outdoor air as part of the Environment and Health Information System (ENHIS) database of the WHO European Region (WHO Regional Office for Europe, 2015b).

Particulate matter

Particulate matter is a mixture with physical and chemical properties that vary by location. Biological components, such as allergens and microbes, are also found in particulate matter. The health effects of particulate matter are well documented. They are due to both short-term (hours, days) and long-term (months, years) exposure and include: respiratory and cardiovascular morbidity, such as aggravation of asthma, respiratory symptoms and an increase in hospital admissions; and mortality from cardiovascular and respiratory diseases and lung cancer (WHO Regional Office for Europe, 2013; Loomis et al., 2013).

For particulate matter in ambient air, population exposure is reflected in the indicator reported by combining data on PM_{10} or $PM_{2.5}$ concentrations with the size of population exposed. Figure 1 shows the average levels of exposure to PM_{10} for 2012 (or the most recent year of data available) for 32 Member States of the WHO European Region. The population-weighted country-level average background PM10 exposure in urban or suburban areas varied from

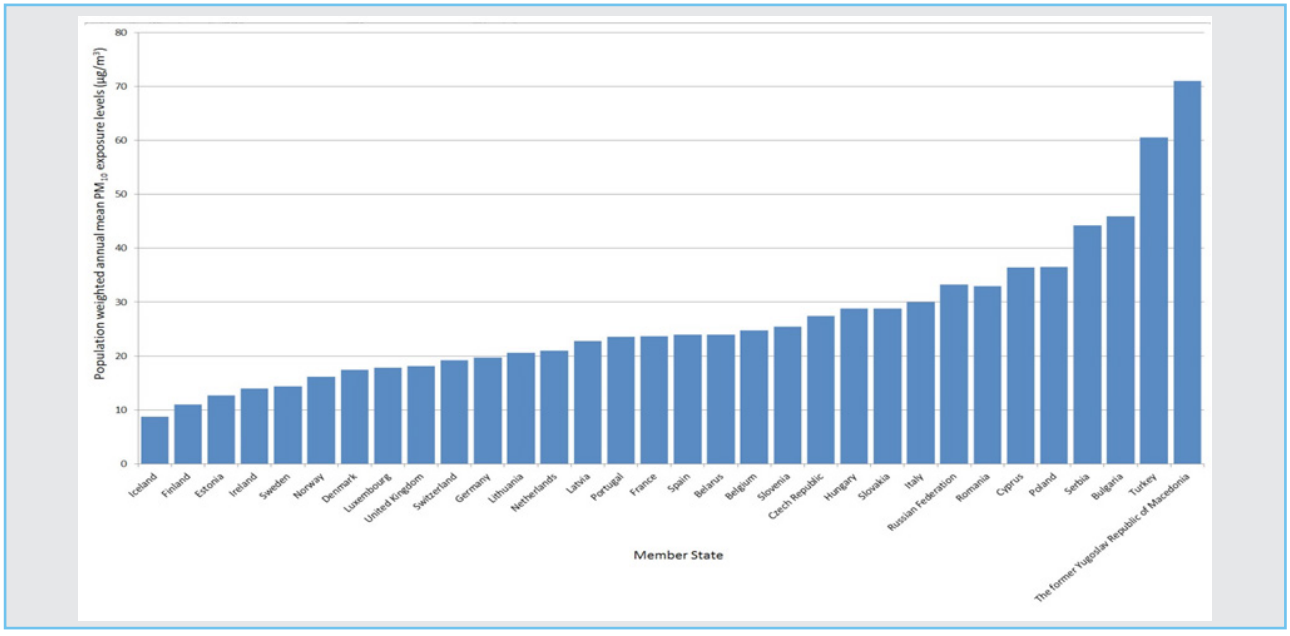

Figure 1: Population-weighted annual mean PM_{10} exposure levels (in µg/m³) in European Region Member States, 2012 (or latest year available). Source: data extracted from ENHIS database (WHO Regional Office for Europe, 2015b).

8.7 µg/m³ to 71.0 µg/m³. A variation in exposure levels of twofold to threefold was observed between cities in some countries. For $PM_{2.5}$, also in 2012 (or the most recent year available), the levels varied from 4.6 µg/m³ to 50.4 µg/m³.

In general, population-weighted average exposure to PM_{10} and $PM_{2.5}$ in all cities of the Region for which data are available has not changed substantially over the last few years. The number of monitoring stations, however, has increased over the years, especially for $PM_{2.5}$. In 2012, the PM_{10} and $PM_{2.5}$ data from regular population-relevant monitoring were available, respectively, for 479 cities in 30 countries and 300 cities in 26 countries. In European cities where particulate matter is monitored, 75.4 % and 94.0 % of people experience annual levels exceeding the WHO air quality guideline for PM_{10} (20 µg/m³) and $PM_{2.5}$ (10 µg/m³), respectively (yearly average values, WHO Regional Office for Europe, 2006). This gives rise to a substantial risk to health. For 28.6 % of urban residents, the annual EU limit value for PM_{10} (40 µg/m³) was exceeded in 2012.

Ozone

There is evidence that short-term exposure to ozone is associated with morbidity (adverse effects on pulmonary function and lung permeability, lung inflammation, respiratory symptoms, and increased use of medication) and mortality. These effects appear to be independent of the effects of other air pollutants, such as particulate matter. Evidence on the effects of long-term exposure to ozone is accumulating; several cohort analyses have been published on long-term exposure and mortality (WHO Regional Office for Europe, 2013).

The indicator SOMO35, expressed in this report as µg/m³ (or ppb) × days, can be used to quantify the cumulative yearly health impacts of ozone. The exposure parameter is the sum of excess of maximum daily 8-hour averages over the cut-off of 70 µg/m³ (35 ppb) calculated for all days in a year. The term SOMO35 is proposed as a name for this indicator of cumulative annual exposure. At this time, there is no convincing evidence of a threshold for an effect on mortality at the population level from exposure to ozone; there is, however, substantial uncertainty about the magnitude of health effects from exposure to ozone at low concentrations (WHO Regional Office for Europe, 2013). Therefore, the quantification of possible effects of daily exposure to ozone on mortality is feasible only when ozone concentrations are sufficiently high and estimates are reliable – that is, above 70 µg/m³ (35 ppb). For this reason, the indicator SOMO35 is used here.

The indicator reported for ozone reflects the cumulative annual exposure to ozone measured in urban background locations. Figure 2 shows the average levels for SOMO35 (in µg/m³ × days) for the most recent year of data available (2012) for 28 Member States of the WHO European Region. Mean SOMO35 values varied by country from 438 µg/m³ × days to 7474 µg/m³ × days. In general, the indicator values increased slightly during the period 2000–2012 in the WHO European Region Member States for which data were available. In most countries, there was a significant increase in the indicator values for the year 2003, most likely due to the unusually hot summer.

Ozone data, as part of regular monitoring, were available for 426 cities in 28 countries in 2012. The coverage of urban populations varied from 14.6 % to 59 %.

Outlook

For both particulate matter and ozone, ground-level monitoring is very limited in countries in eastern Europe, the Caucasus and central Asia, due to the small number of monitoring stations.

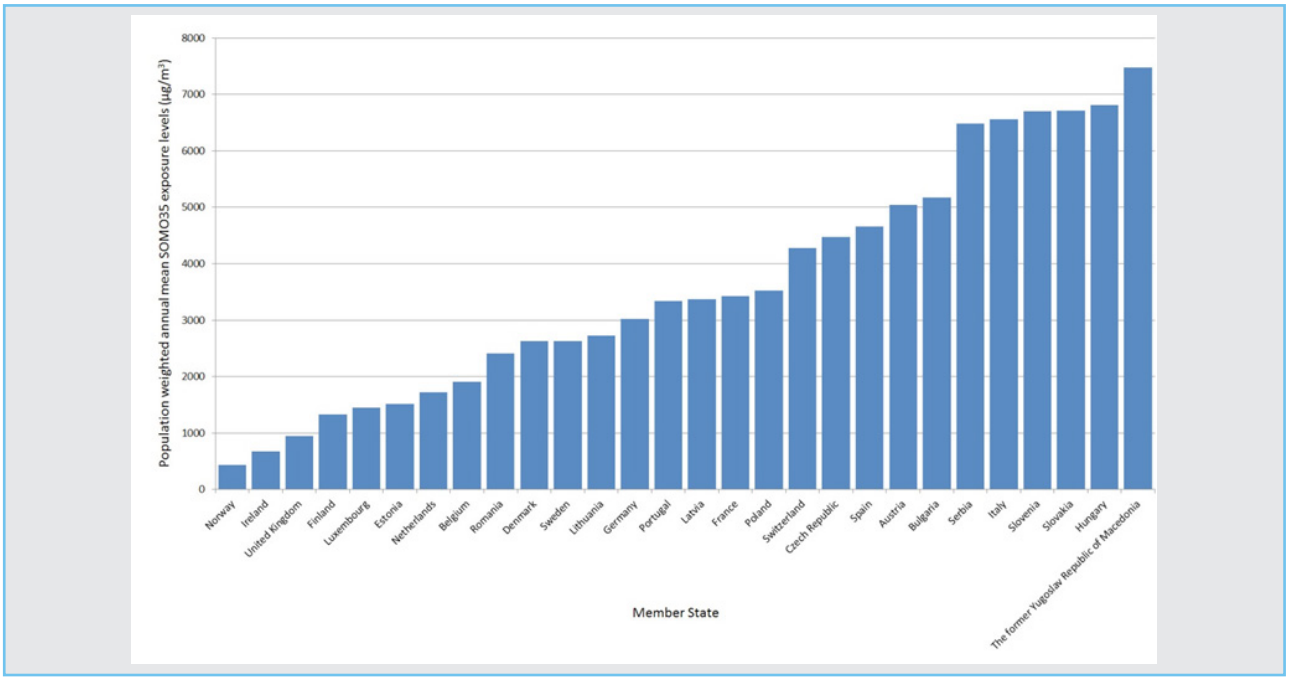

Figure 2: Population-weighted annual mean SOMO35 (in µg/m^3 × days) in European Region Member States, 2012. Source: data extracted from ENHIS database (WHO Regional Office for Europe, 2015b).

Monitoring needs to be improved in many countries to assess population exposure and assist local authorities in establishing plans for improving air quality.

Several Member States of the WHO European Region are parties to the UNECE Convention on Long-range Transboundary Air Pollution (UNECE, 1979). Under the Convention, the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone was amended in 2012 and now includes, for the first time, commitments to reduce emissions of $PM_{2.5}$ (UNECE, 2013). Furthermore, black carbon is now explicitly mentioned in the revision as an important component of $PM_{2.5}$. The revised Protocol also introduced flexible arrangements to facilitate accession of new parties – mainly countries in southern and eastern Europe, the Caucasus and central Asia (UNECE, 2014). The amended Protocol has already been ratified by several Member States.

For EU countries, the EC released a new air policy package in December 2013. It provides new measures to reduce air pollution, updates existing legislation, and aims to further reduce emissions from industry, traffic, power plants and agriculture. This policy package is now being considered by the other EU institutions, with a view to negotiate and agree on the different elements in the package.

The overall compelling scientific evidence on (and significant burden of disease from) air pollution provide convincing arguments for the need to take further action to reduce emissions and improve air quality (for example through transport policies, which will have further co-benefits), as set forth in the Parma Declaration.

Indoor air quality

Evidence on the adverse effects on health of exposure to indoor air has accumulated and been summarized in recent WHO indoor air quality guidelines for dampness and mould, selected chemical pollutants, and household fuel combustion (WHO Regional Office for Europe, 2009, 2010; WHO, 2014b). Very few data are available on exposure to indoor air pollutants in facilities

for children, such as schools and kindergartens – especially in the eastern part of the Region. Recently, international projects have applied harmonized approaches to monitor exposure to indoor air pollutants in schools in many countries – for example, the recently completed SINPHONIE, SEARCH and HITEA projects and ongoing WHO surveys in schools. Also, national and subnational monitoring programmes have been conducted – for example, a national survey of schools in France (Michelot et al., 2013; REC, 2014; EC, 2014). Preliminary findings from these projects demonstrate that poor ventilation and exposure to mould and dampness remain widespread problems and that further efforts to identify and eliminate sources of contamination are warranted to prevent the accumulation of indoor air pollutants, such as formaldehyde and benzene, in some classrooms.

Although important data gaps exist, the limited amount of data available show the need for introducing and enforcing suitable policies – such as the use of low-emission materials, good ventilation practices, proper maintenance, and heating and energy efficiency – to prevent water leaks and the accumulation of moisture, control indoor combustion sources, address these environmental risks, and reduce exposure in indoor environments where children spend a significant part of their time.

References

EC (2014). Guidelines for healthy environments within European schools. Luxembourg: Publications Office of the European Union (http://ec.europa.eu/health/healthy_environments/docs/2015_guidelines_healthyenvironments_eu_schools_en.pdf, accessed 5 February 2015).

Loomis D, Grosse Y, Lauby-Secretan B, El Ghissassi F, Bouvard V, Benbrahim-Tallaa L et al. (2013). The carcinogenicity of outdoor air pollution. Lancet Oncol; 14(13):1262–3(http://dx.doi.org/10.1016/S1470-2045(13)70487-X, accessed 19 May 2014).

Michelot N, Marchand C, Ramalho O, Delmas V, Carrega M (2013). Monitoring indoor air quality in French schools and day-care centers. HVAC&R Research; 19(8):10839. doi:10.1080/10789669.2013.812498.

REC (2014). Airing ideas: summary of SEARCH II results and conclusions. Szentendre: Regional Environmental Center for Central and Eastern Europe (http://search.rec.org/upload/AiringIdeasBrochure_2ndEdition_Web_Feb2014.pdf, accessed 19 May 2014).

UNECE (1979). 1979 Convention on Long-range Transboundary Air Pollution. Geneva: United Nations Economic Commission for Europe (http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1979.CLRTAP.e.pdf, accessed 4 June 2014).

UNECE (2013). 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Long-range Transboundary Air Pollution, as amended on 4 May 2012 (consolidated text). Geneva: United Nations Economic Commission for Europe (ECE /EB.AIR/114; http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE.EB.AIR.114_ENG.pdf, accessed 6 June 2014).

UNECE (2014). Protocol to Abate Acidification, Eutrophication and Ground-level Ozone [website]. Geneva: United Nations Economic Commission for Europe (http://www.unece.org/env/lrtap/multi_h1.html, accessed 19 May 2014).

WHO (2014a). Burden of disease from the joint effects of household and ambient air pollution for 2012: summary of results. Geneva: World Health Organization (http://www.who.int/phe/health_topics/outdoorair/databases/AP_jointeffect_BoD_results_March2014.pdf?ua=1, accessed 4 June 2014).

WHO (2014b). WHO guidelines for indoor air quality: household fuel combustion. Geneva: World Health Organization (http://www.who.int/indoorair/guidelines/hhfc/HHFC_guidelines.pdf, accessed 5 February 2015).

WHO Regional Office for Europe (2006). Air quality guidelines global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0005/78638/E90038.pdf?ua=1, accessed 2 April 2014).

WHO Regional Office for Europe (2009). WHO guidelines for indoor air quality: dampness and mould. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0017/43325/E92645.pdf?ua=1, accessed 19 May 2014).

WHO Regional Office for Europe (2010). WHO guidelines for indoor air quality: selected pollutants. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0009/128169/e94535.pdf?ua=1, accessed 19 May 2014).

WHO Regional Office for Europe (2013). Review of evidence on health aspects of air pollution – REVIHAAP project: technical report. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0004/193108/REVIHAAP-Final-technical-report.pdf, accessed 2 April 2014).

WHO Regional Office for Europe (2015a). Improving environment and health in Europe: how far have we gotten? Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0018/276102/Improving-environment-health-europe-en.pdf?ua=1, accessed 5 May 2015).

WHO Regional Office for Europe (2015b). Environment and Health Information System (ENHIS) [online database]. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/data-and-evidence/environment-and-health-information-system-enhis, accessed 10 March 2015).

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Midterm review progress on Environment and Health in Europe

On 28–30 April 2015 in Haifa, Israel, this high-level meeting brought together representatives of environment and health ministries of the 53 WHO European Member States. The meeting critically assessed the progress in the implementation of the 2010 Parma Declaration on Environment and Health, in which all countries committed to the first-ever, time-bound goals on environment and health to protect children, including: providing safe water and sanitation, healthy and safe settings for physical activity, and environments free of tobacco smoke and toxic chemicals, as well as eliminating asbestos-related diseases. Participants shared also progress and plans in areas such as indoor and outdoor air quality, climate change and noise.

New WHO European reports will be released at the meeting, including a study on the economic cost of air pollution impacts on health, a report on progress towards elimination of asbestos-related diseases, as well as the EHP-MTR report itself. The meeting conclusions and outcome of the review are expected to inform the discussions of the 65th session of the WHO Regional Committee for Europe and the Twenty-first Session of the Committee on Environmental Policy of the United Nations Economic Commission for Europe (UNECE) in 2015, as well as the agenda of the Sixth Ministerial Conference on Environment and Health planned for 2017.

More information can be obtained from: http://www.euro.who.int/en/media-centre/events/events/2015/04/ehp-mid-term-review/background

WHO Updates Health and Climate Change Country Profiles

WHO provided an update on the development of WHO/UNFCCC country profiles during a side event at the Bonn Climate Change Conference on 2 June 2015. 'Country Profiles for Health and Climate Change' focused on experiences of and lessons learned by the WHO European Regional Office in developing the profiles, which aim to support the development of national adaptation plans.

The profiles summarize information on the health impacts, adaptation measures and co-benefits for health of mitigation. They focus on: key aspects of climate change that are relevant for human health; observed or projected health impacts; approaches (health measures) taken to adapt to climate change; and co-benefits for health and climate change mitigation measures. The profiles will build on existing data and make use of profiles already produced. The UK's country profile was presented in detail.

Participants also discussed: health information for climate change negotiators in the process towards the COP21 Conference in Paris (November 2015), and WHO/Global Climate and Health Alliance (GCHA) Global Communication Campaign 'Our Climate, Our Health.'

Read more: http://www.climate-l.iisd.org/news/who-updates-health-and-climate-change-country-profiles/

MEETINGS AND CONFERENCES — MEETINGS AND CONFERENCES — MEETINGS AND CONFERENCES

2nd European Climate Change Adaptation Conference, 12-14 May 2015 in Copenhagen, Denmark

The second biennial **'European Climate Change Adaptation Conference'** had been hosted at Bella Conference Center. About 1,000 participants from 45 countries representing all continents attended this event. The conference offered a unique platform for researchers, policy makers, and businesses to share new research results, novel policy developments, and practical implementation experiences regarding climate change impacts and adaptation, as well as highlight opportunities for business innovations aimed at supporting the transition to low carbon societies.

The scientific programme included keynote speeches from high level officials and experts, over 60 presentation sessions, 20 workshops, and poster sessions. The selected topics covered business, economics, urban adaptation, sectoral adaptation, infrastructure, governance, social sciences and participation, climate services, risks, and region-specific issues. Additionally, a series of high quality mid-day keynote speakers from a number of organizations had taken place, e.g. Mayors Adapt, the World Business Council for Sustainable Development, the EU Life projects, and Climate Services.

A number of presentations dealt with the interaction of air pollution and climate change. For example, the paper of Vautard and Watkiss presented findings of a study on the Air pollution Impacts from Climate Change in Europe. The analysis generated long-term simulations from several air pollution transport models (CHIMERE, MATCH, EMEP, MOCAGE) and simulated key air pollutants (ozone, NO^2 and $PM_{10/2.5}$) under 2°C of warming relative to pre-industrial levels over Europe. Importantly, this analysis took account of future air pollutant emissions reductions, from currently planned legislation or more stringent measures. Findings from the modelling experiments showed that in a scenario where the 2°C global warming occurs near the middle of the 21st century, as predicted from climate simulations using the RCP4.5 scenario, currently planned air quality legislation in Europe, together with improvements in global ozone concentrations will still reduce air pollution in Europe. The consequences of a 2°C warming do not significantly hinder such improvements, as they induce changes smaller than those obtained by emission reductions, though there are important regional differences in the patterns of these changes.

Worldwide every 8th death is caused by air pollution and over 50 % of the world's population lives in cities. Citicens are suffering from syndromes like stress, asthma allergies, bronchitis and cancer caused by heat, noise and air pollution. These environmental impacts are even worsened by climate change.

Greening cities has been proposed as a no regret adaptation measure to reduce climate change impacts in many regions with different climatic conditions. Green areas can moderate the urban heat island effect, which already affects cities. Therefore they not only have the capacity to adapt cities to the negative impacts of climate change but also can improve environmental conditions, such as air quality, and present living conditions. While cities'opportunities to acquire spaces for new green areas in central districts are limited there are opportunities on roofs of new and existing buildings that has not been fully developed yet because of its initial cost, the difficulties in evaluating and attributing the benefits. Iglesias and Chiabai presented results of their Madrid case study on Co-benefits of Green Adaptation Strategies to Reduce Climate Impacts.

Splittgerber gave an introduction to a practical approach on climate infrastructure, which is based on a vertical plant wall that filters the air, cools the surrounding and reduces noise. 1682 plants in single pots are filtering the air, each one is growing in moss which serves as a substrate (no soil is needed). Due to recent studies mosses are excellent for filtering fine dust because of their great enlarged surface with more than one million leaflets and there rootless metabolism. The combination of the moss as optimal substrate and the plants for reducing wind speed and shading the moss accelerate the filter capacity of both species. Thus a symbioses is formed in each pot. Placed due to a numerical analyses of the air and particle flow in hotspot areas, this natural filter can reduce the air pollution up to 30 %. The capacity is possible by considering natural flows such as wind and artificial flows caused by road traffic. In a street canyon this makes it more efficient than common plants like trees. As the plants cool down the ambient air through evaporation on their leaf surface a climate change adaptation service is provided. This is enhanced by the fact that air pollution has a direct correlation to extreme weather events. To lift the natural capacities a sophisticated structure with automated irrigation, water and energy supply was created. The integrated photovoltaic system energizes the whole control engineering, measurement and data transmission technology.

Three scientific projects were behind ECCA 2015

Base ("Bottom-Up Climate Adaptation Strategies for a Sustainable Europe")
The EU research project BASE supports action for sustainable climate change adaptation in Europe. It makes experiential and scientific information on adaptation meaningful, transferable and easily accessible to decision-makers at all levels. The project is funded under the EUs 7th Research Framework Programme (FP7). Read more at http://www.base-adaptation.eu/

Ramses ("Reconciling Adaptation, Mitigation and Sustainable Development for Cities")
The main aim of this research project (is to deliver much needed quantified evidence of the impacts of climate change and the costs and benefits of a wide range of adaptation measures, focusing on cities. RAMSES will engage with stakeholders to ensure this information is policy relevant and ultimately enables the design and implementation of adaptation strategies in the EU and beyond.The project will focus on climate impacts and adaptation strategies pertinent to urban areas due to their high social and economic importance. Read more at http://www.ramses-cities.eu/

ToPDAd ("Tool-supported Policy Development for regional Adaptation")
The objective of the EU research project ToPDAd is to find the best strategies for businesses and regional governments to adapt to the expected short term and long term changes in climate. The consultancy VTT in Finland is the lead organisation, with participation from leading research communities across Europe. Read more at http://www.topdad.eu/

Further ECCA 2015 information can be obtained from http://www.ecca2015.eu/about-ecca-2015

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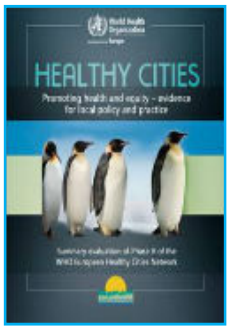
Healthy cities. Promoting health and equity – evidence for local policy and practice. Summary evaluation of Phase V of the WHO European Healthy Cities Network

by Evelyne de Leeuw, Agis D. Tsouros, Mariana Dyakova and Geoff Green, 2014. vi + 23 pages.
ISBN: 978 92 890 5069 2. Available in English (PDF), 3.6 MB. Free of charge.



This publication summarizes the evaluation of Phase V (2009–2013) of the WHO European Healthy Cities Network. The evaluation process was designed in collaboration with city representatives, academic institutions and public health experts. It adopted a realist synthesis approach, being responsive to the unique social, cultural, political, health and epidemiological circumstances in the 99 cities in the WHO European Healthy Cities Network and 20 accredited national networks. The evaluation findings are rooted in the enduring values such as equity, governance, partnership, participation and sustainability. Also considering the core Phase V themes, this publication focuses on policy and governance, healthy urban environments and design, caring and supportive environments, health and active living, national networks' performance and effects on health and equity. The evaluation finds good progress among cities and networks that differs in scale and quality. The healthy cities movement adds value and allows local governments to invest in health and well-being and address inequities through novel approaches to developing health.
http://www.euro.who.int/en/publications/abstracts/healthy-cities.-promoting-health-and-equity-evidence-for-local-policy-and-practice.-summary-evaluation-of-phase-v-of-the-who-european-healthy-cities-network

Residential heating with wood and coal: health impacts and policy options in Europe and North America

by WHO (World Health Organization), 2015. viii + 49 pages. ISBN 978 92 890 5076 0. Available in English (PDF), 2.8 MB, Russia (PDF) 4.5 MB.

Residential heating with wood and coal is an important source of ambient (outdoor) air pollution; it can also cause substantial indoor air pollution through either direct exposure or infiltration from outside. Evidence links emissions from wood and coal heating to serious health effects such as illness and death from respiratory and cardiovascular diseases. Burning wood and coal also emits carcinogenic compounds.
The report describes the health effects of and policy options for dealing with residential heating with wood and coal in Europe and the United States. The results presented indicate that it will be difficult to tackle problems with outdoor air pollution in many parts of the world without addressing this source sector. National, regional and local administrations, politicians and the public at large need a better understanding of the role of wood biomass heating as a major source of harmful outdoor air pollutants (especially fine particles). This report is intended to help increase such an understanding.
http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2015/the-school-environment-policies-and-current-status

School environment: Policies and current status

by WHO (World Health Organization), 2015. Available in English (PDF), 2.8 MB, Russia (PDF) 4.5 MB.

This report includes a summary of existing policies on providing healthy environments in schools and kindergartens, an overview of environmental risk factors in schools, information on design, methods and results of selected recently conducted exposure assessment surveys and a summary of pupils' exposures to major environmental factors, such as selected indoor air pollutants, mould and dampness and poor ventilation in classrooms, sanitation and hygiene problems, smoking and the use of various modes of transportation to school.
While most Member States have comprehensive policies aiming at providing healthy environment for pupils, implementing and enforcing some of these policies is a common challenge. Further efforts are needed to improve school sanitation, provide adequate ventilation, prevent dampness and mould growth, reduce emission of indoor air pollutants, improve enforcement of existing smoking bans, facilitate the use of active transportation modes in some countries. Facilitating the use of harmonized monitoring method is essential for closing existing data gaps, identifying and addressing environmental risk factors in schools.
http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2015/the-school-environment-policies-and-current-status

Implementing the European Regional Framework for Action to protect health from climate change. A status report

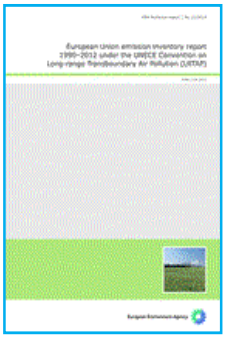
by WHO (World Health Organization), 2015. vi + 42 pages. ISBN 978 92 890 5080 7. Available in English (PDF), 2.2 MB, Russia (PDF) 2.4 MB.

How far have Member States in the WHO European Region progressed in implementing the European Commitment to Act on climate change and health? This was the question addressed to members of the Working Group on Health in Climate Change (HIC) of the European Environment and Health Task Force in summer 2012. The HIC members were asked to respond to a comprehensive questionnaire to assess the current status of health-relevant climate change mitigation and adaptation actions. A total of 22 Member States answered the questions focusing on eight thematic areas or topics: governance, vulnerability, impact and adaptation assessments, national and subnational adaptation strategies, climate-change mitigation, strengthening of health systems, awareness raising and capacity building, green health services and sharing best practices. This publication describes and analyses their responses.
http://www.euro.who.int/en/publications/abstracts/implementing-the-european-regional-framework-for-action-to-protect-health-from-climate-change.-a-status-report

Other Publications:

European Union emission inventory report 1990–2012 under the UN-ECE Convention on Long-range Transboundary Air Pollution (LRTAP) (EEA Technical report No 12/2014)

by EEA (European Environment Agency), 2014.



This document is the annual European Union emission inventory report under the United Nations Economic Commission for Europe (UNECE) Convention on Long-range Transboundary Air Pollution (LRTAP). The report and its accompanying data are provided as an official submission to the secretariat for the Executive Body of the LRTAP Convention by the European Commission on behalf of the European Union as a party. The report is compiled by the European Environment Agency (EEA) in cooperation with the EU Member States.
http://www.eea.europa.eu/publications/lrtap-2014

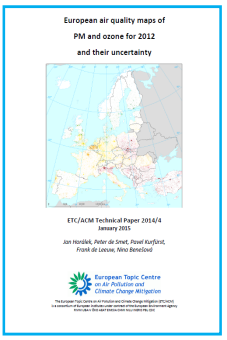
National adaptation policy processes in European countries — 2014 (EEA Report No 4/2014)

by EEA (European Environment Agency), 2014.

This report draws on the results of a self-assessment survey conducted on national adaptation policy processes in Europe. In May 2013, the survey was sent out by the European Environment Agency (EEA) to authorities in countries responsible for coordinating adaptation at national level (the EEA 32 member countries, and in Croatia in July 2013 as a new EU Member State and EEA member country). Some 30 EEA member countries provided their responses on a voluntary basis. Thanks to the high response rate and the wealth of information provided by these European countries, this report presents a unique collection of information and the largest and most comprehensive overview of national adaptation policy processes in Europe, to date.
http://www.eea.europa.eu/publications/national-adaptation-policy-processes

Existing data and knowledge gaps about air-climate inter-linkages and way forwards for improvement (ETC/ACM Technical Paper 2014/7)

by ETC/ACM, February 2015, 84 pp.



Substantial progress has been made over the past few years in understanding the linkages between air pollution with climate change. This paper reviews the main findings and points out the main data and knowledge gaps that remain to be addressed.
http://www.acm.eionet.europa.eu/reports/docs/ETCACM_TP_2014_7_AP_CC_interlinkages.pdf

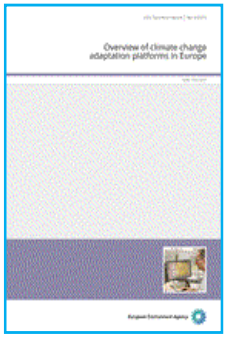
European air quality maps of PM and ozone for 2012 and their uncertainty (ETC/ACM Technical Paper 2014/4)

by ETC/ACM, February 2015, 91 pp.

The paper provides the annual update of the European air quality concentration human health related indicators of pollutants PM_{10} (annual average, 36th highest daily average), $PM_{2.5}$ (annual average) and ozone (26th highest daily max. 8-hr running average, SOMO36), and vegetation related indicators (AOT40 for crops and for forests), their exceedance probability and population, vegetation respectively, exposure estimates and exceedance for the year 2012, including its exceedance compared to the previous years 2005-2011. The analysis is based on interpolation of annual statistics of the 2012 observational data reported by EEA Member countries in 2013 and stored in AirBase. The paper presents the mapping results and includes an uncertainty analysis of the interpolated maps. These maps, with their spatial exceedance and exposure estimates, are intended to be used for the assessment of European air quality by the EEA and its ETC/ACM, and for (interactive visual) public information purposes through the EEA website.
http://www.acm.eionet.europa.eu/reports/ETCACM_TP_2014_4_spatAQmaps_2012

Overview of climate change adaptation platforms in Europe (Technical report No 5/2015)

by EEA (European Environment Agency), 2015.



As adaptation policy progresses in Europe, it is increasingly important, that people have access to relevant and high quality information. A broad range of users consider web-based adaptation platforms an effective means of collecting and sharing experiences and knowledge to interested stakeholders including policymakers, practioners and the general public. The report provides an overview on the state of play of most adaptation platform in Europe including 14 national adaptation platforms. It offers information on the scope, history, targeted users, the selection and presentation of knowledge, the links to other topics, scales and platforms as well as the monitoring and evaluation of the platforms. It also analyses existing and potential links of the platforms to climate services and Disaster risk reduction (DRR) platforms.
http://www.eea.europa.eu/publications/overview-of-climate-change-adaptation

COMING EVENTS — COMING EVENTS — COMING EVENTS — COMING EVENTS — COMING EVENTS — COMING EVENTS

2015

19th ETH Conference on Combustion Generated Nanoparticles
28 June–1 July, Zurich, Switzerland, http://www.lav.ethz.ch/nanoparticle_conf/

International Scientific Conference - Our Common Future Under Climate Change
7-10 July, Paris, France, http://www.commonfuture-paris2015.org/

27th Conference of the International Society for Environmental Epidemiology – Addressing Environmental Health Inequalities
30 August-3 September, São Paulo, Brazil, http://www.isee2015.org/

EAC 2015 - European Aerosol Conference
6-11 September, Milan, Italy, http://www.eac2015.it/

Air Pollution 2015 - 9th Croatian Scientific and Professional Conference
8-12 September, Poreč, Croatia, http://www.huzz.hr/skupovi_eng.html

8th International Conference on Children's Environmental Health and Safefty (INCHES 2015)
15-17 October, Stresa, Italy, http://inchesnetwork.net/

13th International Conference on Atmospheric Sciences and Applications to Air Quality
11-13 November, Kobe, Japan, http://www.metsoc.or.jp/asaaq13/index.htm

2016

10th International Conference on Air Quality – Science and Application
14-18 March, Milan, Italy, http://www.airqualityconference.org/

24th International Conference on Modelling, Monitoring and Management of Air Pollution (Air Pollution 2016)
20-22 June, Crete, Greece, http://www.wessex.ac.uk/16-conferences/air-pollution-2016.html?utm_source=wit&utm_medium=email&utm_campaign=air16cfp&uid=7041

14th International Conference on Indoor Air Quality and Climate
3–8 July, Ghent, Belgium, http://www.indoorair2016.org/

17th IUAPPA World Clean Air Congress - Mega-City Perspectives
28 August-2 September, Busan, South Korea, http://www.iuappa2016.org/