



# NEWSLETTER



WHO COLLABORATING CENTRE FOR AIR QUALITY MANAGEMENT  
AND AIR POLLUTION CONTROL at the GERMAN ENVIRONMENT AGENCY

No. 57 - July 2016

## EDITORIAL

### Lessons from Barcelona for a healthier life

Known for its beauty and for its vibrant life Barcelona is an average European city. Very recently a paper published in “Environmental Health Perspectives” looked at the question how healthy this city is<sup>1</sup>. How many deaths would have been prevented if in Barcelona the international recommendations for physical activity, air quality, noise, heat and access to green spaces would have been met? The results were remarkable. Almost 20 % of the deaths could have been prevented, and life expectancy would increase by almost one year. But better life conditions makes people not only healthier and leads to a longer average life span. It also pays. Meeting the environmental and health requirements in Barcelona would lead to economic savings of 9.3 billion € annually.



Source: TTstudio / Fotolia.com

## CONTENTS

- 1 Editorial
- 3 WHO/Europe launches AirQ+, a tool for health risk assessment of air pollution
- 8 Notes and News
- 10 Meetings and Conferences
- 12 Publications
- 16 Coming Events

One third of the preventable deaths were caused by insufficient physical activity, one fourth by low air quality. Both factors can be heavily influenced by urban planning and new transportation concepts. Better infrastructure for biking in the cities and better walkability in our cities can positively influence our health by increasing activity and by improving the quality of our environment particularly by improving air quality.

Improving air quality in our cities can improve human health dramatically. The United Nations estimated that in 2050, 70 % of the people will live in cities globally. In urban areas that monitor air pollution more than 80 % of the inhabitants are exposed to concentrations exceeding the WHO Air Quality Guidelines (WHO AQG - global update) of 2005. Low-income cities are the most impacted. Almost all cities in low- and middle income countries (LMI) with more than 100,000 inhabitants do not meet WHO AQG.

Improving air quality in our cities is urgent, cost effective and a matter of life. In May 2016, delegates of the sixty-ninth World Health Assembly (WHA) in Geneva, passed the



resolution “Health and the environment: a road map for an enhanced global response to the adverse health effects of air pollution (A 69.18)”. This resolution follows the last year’s WHA resolution calling for action to reduce health risks caused by air pollution (“Health and the environment: addressing the health impacts of air pollution” A 68.18).

The new road map aims to reduce the estimated seven million annual deaths globally as a result of air pollution exposure. Air pollution is recognized as one leading environmental health risk. The road map asks international organizations and WHO member states to broaden the knowledge about health impact of air pollution and health gains by actions taken to improve air quality. To develop action plans, to set air quality standards and to enforce them is the task of all of us, as citizens, civil servants and as scientists. The actual newsletter covers different aspects that are important for the steps on our way to improve air quality: Health risk assessment of air pollutants, urban mobility and promotion of cycling, monitoring air pollutants, setting air quality standards and human biomonitoring. We hope this newsletter again will be a companion for you on the way to better air and healthier cities. Without doubt: this will be a long way. But every step will reduce suffering from diseases, prevent premature deaths and will pay economically.

**Andreas Gies and Hans-Guido Mücke**  
**WHO Collaborating Centre for**  
**Air Quality Management and Air Pollution Control**

---

<sup>1</sup> Mueller N, Rojas-Rueda D, Basagaña X, Cirach M, Cole-Hunter T, Dadvand P, Donaire-Gonzalez D, Foraster M, Gascon M, Martinez D, Tonne C, Triguero-Mas M, Valentín A, Nieuwenhuijsen M. (2016) Urban and Transport Planning Related Exposures and Mortality: A Health Impact Assessment for Cities. Environ Health Perspect; <http://dx.doi.org/10.1289/EHP220>.

## **ABOUT**

The NEWSLETTER is published twice a year by the WHO COLLABORATING CENTRE FOR AIR QUALITY MANAGEMENT AND AIR POLLUTION CONTROL, located at the GERMAN ENVIRONMENT AGENCY.

It is circulated in 2000 issues and distributed to readers in more than 50 countries. Additionally, the NEWSLETTER is published on our website (see link below) to be downloaded as pdf. The NEWSLETTER does not constitute formal publications; it should not be reviewed, abstracted or quoted without prior permission. Authors alone are responsible for their articles.

## **NOTE**

We appreciate articles and contributions concerning the subject of Air Quality Management and Air Pollution Control. Due to the abuse of e-mail addresses the symbol @ is replaced by [at]!

## **CONTACT**

WHO Collaborating Centre for Air Quality Management and Air Pollution Control  
Corrensplatz 1, 14195 Berlin, Germany  
phone: + 49-30-8903-1280/81/82, fax: + 49-30-8903-1283  
e-mail: [who.cc.air\[at\]uba.de](mailto:who.cc.air[at]uba.de)  
website: <http://www.umweltbundesamt.de>



## WHO REGIONAL OFFICE FOR EUROPE LAUNCHES AIRQ+, A TOOL FOR HEALTH RISK ASSESSMENT OF AIR POLLUTION

Marie-Eve Héroux, Pierpaolo Mudu

Air pollution is the most important environmental risk factor for health. Within its activities on air quality and health, the World Health Organization (WHO) Regional Office for Europe, has developed AirQ+ software tool to support experts, policy-makers and stakeholders from health and other sectors, at local and national level, in tackling air pollution. The estimates generated by AirQ+ are the starting point to develop or adjust policies and measures that protect people's health.

AirQ+ updates and enhances previous versions of the AirQ software released between 2000 and 2004. Preliminary results from an ongoing literature review show that in 2000-2016 over 50 publications (56 % journal articles, 36 % reports and 7 % theses) were issued related to the use of AirQ for health risk assessment of air pollution, with an increasing trend since 2008. The review also reveals that AirQ has been used in several countries in Asia and a few in South America, in addition to a vast majority of analyses carried out across countries of the European Region. The pollutant most used in the analyses is particulate matter (PM) (PM<sub>10</sub>: 71 %, PM<sub>2.5</sub>: 35 %), followed by nitrogen dioxide (NO<sub>2</sub>) (31 %).

AirQ+ responds to several requests made in a landmark World Health Assembly resolution on air pollution from 2015 (WHO, 2015), which asked WHO to provide tools that assist decision-makers at all levels of government in addressing the health impact of air pollution (an editorial also appeared in this newsletter in the June 2015 issue (No. 55)). Air pollution is again on the agenda of the World Health Assembly in 2016, which is expected to propose a road map for the implementation of the resolution.

AirQ+ is available online as a compressed zip folder on the Regional Office website at <http://www.euro.who.int/en/airqplus>. It was launched on 19 May 2016 in Bonn, Germany, at the annual meeting of the Joint Task Force on Health Aspects of Air Pollution (TFH), chaired by WHO within the United Nations Economic Commission for Europe (UNECE) Convention on Long-range Transboundary Air Pollution (LRTAP). TFH meeting participants, along with additional invited guests, also had the opportunity to join an interactive training workshop on 20 May 2016 to get familiar with the new software tool.

The following overview is meant to introduce AirQ+ to potential users and help them understand what it does, the health measures it estimates, how to use it, and its limitations. To further support AirQ+ users, a set of examples is available for each combination of pollutant/health outcome/type of exposure. This documentation is both embedded in the software and downloadable as a separate file from the AirQ+ page.

We invite you to download AirQ+ and use it to assess the health risks of air pollution in your city or country. We would appreciate receiving your user information and feedback through a survey we have developed, that allows you to flag your needs as well as suggestions for improvements. We are also considering establishing a community of AirQ+ users and would be glad to have your feedback in this regard.



## What does AirQ+ do? A short summary

Based on recent scientific evidence, AirQ+ is a tool to perform quantitative assessments of the health risks associated to air pollution in a given population, updating and enhancing the earlier WHO AirQ software. AirQ+ can be used for any city, country or region to estimate the following.

1. How much of a certain health effect is attributable to selected air pollutants?  
For example: what proportion of mortality is due to ozone air pollution in a given city?
2. Compared to the current scenario, what would be the change in health effects if air pollution levels changed in the future? For example: how many lives would be saved by a specific decrease in PM<sub>2.5</sub> levels in a certain country?

### Health risk assessment of air pollution – concept and methods

An air pollution health risk assessment estimates the health impact to be expected from measures that affect air quality, in different socioeconomic, environmental, and policy circumstances. As such, it is an important tool for informing public policy decisions.

A recent Regional Office report on general principles for health risk assessment of air pollution (WHO Regional Office for Europe, 2016) describes in broad terms how the health risks of outdoor air pollution and its sources are estimated, and gives an overview of the general principles for the proper conduct of a health risk assessment for various scenarios and purposes.

Specifically, AirQ+ estimates the health burden associated with long- and short-term exposure to ambient air pollution from PM<sub>2.5</sub> and PM<sub>10</sub>, ozone (O<sub>3</sub>), NO<sub>2</sub>, black carbon, as well as long-term exposure to household air pollution from solid fuel use, for several health endpoints (mortality for all-causes and for selected causes, prevalence and incidence of selected diseases, hospital admissions, etc.). Table 1 summarizes the pollutants, types of exposure and health endpoints handled by AirQ+.

All calculations performed by AirQ+ are based on methodologies used and concentration–response functions established by epidemiological studies. The concentration–response functions included in the software are based on the review of all studies available up to 2013, carried out as part of the Regional Office project health risks of air pollution in Europe (HRAPIE) (WHO Regional Office for Europe, 2013).

### AirQ+ output

AirQ+ calculates the following estimates:

1. attributable proportion of cases;
2. number of attributable cases;
3. number of attributable cases per 100 000 population at risk;
4. proportion of cases in each category of air pollutant concentration;
5. cumulative distribution of cases by air pollutant concentration,
6. Years of Life Lost.

More details about these measures are available in the Glossary document included in the software.



## Pre-loaded vs user-supplied data

**AirQ+ provides users** with pre-loaded datasets for:

- Relative Risks (RRs) for selected pollutant health end-points pairs;
- conversion factors between  $PM_{2.5}$  and  $PM_{10}$  at the national level; and
- worldwide solid fuel use statistics at the national level.

**AirQ+ requires users** to load their own data for the area and population being studied, such as:

- Air pollution levels (e.g., average levels or frequency of days with specific levels)
- Population exposed (e.g., number of adults aged  $\geq 30$  years)
- Health data (e.g., baseline rates of health outcomes)

**AirQ+ also enables users** to load their own data for other pollutants not included in AirQ+, if RRs are available. In this situation, it is highly recommended to use results from a meta-analysis rather than from a single local study.

## Limitations of AirQ+

The estimates generated by AirQ+ carry some uncertainties as they rely on information from concentration-response functions, which are based on a number of assumptions.

Key assumptions include:

- models consider ambient air pollution concentration as a proxy indicator of population exposure;
- calculations do not account for multiple exposure cases or multipollutant scenarios;
- morbidity risk coefficients present low reliability due to difficult conformity in the assessment of health outcomes related to hospital admissions and morbidity outcomes;
- household air pollution RRs are based on studies carried out in situations of very high pollution.

## Next steps

WHO/Europe keeps working to include additional functionalities and to enhance the tool. Feedback from users will be an important input, along with discussions with experts and Member States representatives.

## Over to you!

Download the software at <http://www.euro.who.int/en/airqplus> and take the survey at <https://www.research.net/r/airqplus>.

**TABLE 1. AIR POLLUTANTS, TYPES OF EXPOSURE AND HEALTH ENDPOINTS HANDLED BY AIRQ+**

Health outcome		Exposure									
		Ambient air pollution									Household air pollution
		Long-term					Short-term				Long-term
		PM <sub>2.5</sub>	PM <sub>10</sub>	NO <sub>2</sub>	O <sub>3</sub>	BC	PM <sub>2.5</sub>	PM <sub>10</sub>	NO <sub>2</sub>	O <sub>3</sub>	Solid fuel use
Mortality	Mortality, all (natural) causes	x		x		x	x		x	x	
	Mortality, ALRI (children 0-4)	x									x
	Mortality, COPD (adults 30+)	x									
	Mortality, COPD (women 30+)										x
	Mortality, COPD (men 30+)										x
	Mortality, IHD (adults 30+)	x									
	Mortality, IHD (women 30+)										x
	Mortality, IHD (men 30+)										x
	Mortality, LC (adults 30+)	x									
	Mortality, LC (women 30+)										x
	Mortality, LC (men 30+)										x
	Mortality, Stroke (adults 30+)	x									
	Mortality, Stroke (women 30+)										x
	Mortality, Stroke (men 30+)										x
	Mortality, respiratory diseases				x				x		
	Mortality, CVDs								x		
Postneonatal infant mortality, all-cause		x									
Prevalence/ incidence	Prevalence of bronchitis in children		x								
	Prevalence of bronchitis symptoms in asthmatic children aged 5-14			x							
	Incidence of chronic bronchitis in adults		x								
	Incidence of asthma symptoms in asthmatic children						x				
Hospital admissions	Hospital admissions: CVD (including stroke)						x				
	Hospital admissions, CVD (without stroke)								x		
	Hospital admissions: respiratory diseases						x		x	x	
RADs/work days lost	Work days lost, working age population only						x				
	Restricted activity days (RADs)						x				
	Minor restricted activity days (MRADs)									x	

Acronyms: Acute lower respiratory disease (ALRI), chronic obstructive pulmonary (COPD), Ischaemic heart disease (IHD), lung cancer (LC), cardiovascular diseases (CVD), restricted activity days (RADs), minor restricted activity days (MRADs), particulate matter less than 2.5 microns (PM<sub>2.5</sub>), particulate matter less than 10 microns (PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), black carbon (BC)



## References

WHO Regional Office for Europe (2013) Health risks of air pollution in Europe – HRAPIE project. Recommendations for concentration–response functions for cost–benefit analysis of particulate matter, ozone and nitrogen dioxide. Copenhagen: WHO Regional Office for Europe.

<http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/health-risks-of-air-pollution-in-europe-hrapie-project.-recommendations-for-concentration-response-functions-for-costbenefit-analysis-of-particulate-matter,-ozone-and-nitrogen-dioxide>. Accessed 22 May 2016.

WHO (2015) Health and the environment: addressing the health impact of air pollution. WHA Resolution WHA68.8. Geneva: WHO.

[http://apps.who.int/gb/ebwha/pdf\\_files/WHA68-REC1/A68\\_R1\\_REC1-en.pdf#page=27](http://apps.who.int/gb/ebwha/pdf_files/WHA68-REC1/A68_R1_REC1-en.pdf#page=27), page 20. Accessed 22 May 2016.

WHO Regional Office for Europe (2016) Health risk assessment of air pollution. Copenhagen: WHO Regional Office for Europe.

<http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2016/health-risk-assessment-of-air-pollution.-general-principles-2016>. Accessed 22 May 2016.

## Contact

Marie-Eve Héroux, Pierpaolo Mudu  
Environmental Exposures and Risks  
WHO European Centre for Environment and Health, WHO/Europe  
Email: [info\[at\]ecephonn.euro.who.int](mailto:info[at]ecephonn.euro.who.int)  
Website: <http://www.euro.who.int/en/air>



## NOTES AND NEWS — NOTES AND NEWS — NOTES AND NEWS — NOTES AND NEWS

## Boosting Urban Mobility Plans (BUMP) - Integrating Health Priorities into Planning

The BUMP project provides city planners and environmental and technical officers in local authorities with the knowledge and skills to plan and manage sustainable mobility in urban areas. BUMP is co-funded by the Intelligent Energy Europe Programme of the European Union, implemented in nine European countries that have very different urban planning policies. The quality of the urban environment and the efficiency of existing transport policies for both passengers and goods differ substantially between countries in the target area, reducing transport-related energy consumption and promoting an integrated urban transport policy are common challenges that need to be tackled at European level.

The goal of the project is to raise awareness and foster the technical know-how necessary for the development of sustainable urban mobility plans (SUMP) by building the capacities of local authorities and promoting the exchange of knowledge and expertise. Local authorities are encouraged to join the EU CIVITAS Initiative for cleaner and better transport in cities. Strategic objectives are to:

- promote the development of SUMP and improve skills in local authorities;
- reduce fuel consumption;
- improve air quality in cities where new SUMP have been introduced;
- consolidate health benefits (due to fewer road accidents and reduced pollution);
- attract investments in sustainable mobility; and
- promote integrated transport policy, as the first priority of the Transport White Paper

Roadmap to a single European Transport Area: Towards a competitive resource-efficient transport system (COM 2009:490).

BUMP is a follow-up to PATRES – Public Administration Training and Coaching on Renewable Energy Systems. As a partner in the BUMP project the Regional Environmental Centre for Central and Eastern Europe (REC) is responsible for the implementation of the health-related strategic objective.

Further information can be obtained from: <http://www.bump-mobility.eu/en/home.aspx>



## NOTES AND NEWS — NOTES AND NEWS — NOTES AND NEWS — NOTES AND NEWS

## UNECE took part in Cycling Festival Europe

Cycling is a green and healthy mode of transport, since it has the potential to significantly improve health and reduce mortality due to inactivity and to reduce local air pollution caused by motorised traffic. Overall, it is a unique opportunity to connect people with their urban environment and to take action against pollution and climate change.

On 14 April, UNECE participated in one of the activities organised in different cities for the launch of the Cycling Festival Europe 2016 (<https://www.cyclingfestivaleurope.eu/>), an initiative of the Dutch EU Presidency. UNECE promotes cycling for better health, cleaner air and a better environment in the framework of the Transport, Health and Environment Pan-European Programme (THE PEP; <http://www.unece.org/thepep/en/welcome.html>), which it supports jointly with WHO/Europe. UNECE also provides the platform for the development of international rules for safe traffic, under the 1968 Convention on Road Traffic, and technical regulations on helmets for high-speed electric bikes.

## Air Pollution Health Effects on Elderlies (GERIA project)

The GERIA project work was conducted in the two main Portuguese cities, Lisbon and Porto.

Within the 1st phase of this study, 53 Elderly Care Centers/ECC (33 in Lisbon and 20 in Porto) were selected through proportional stratified random sampling (by parish) from the 151 included in the Portuguese Social Charter (95 in Lisbon and 56 in Porto). These 53 ECC were attended by 2,110 residents (1,442 in Lisbon and 668 in Porto). The 2nd phase completed a thorough analysis based on the 1st phase preliminary study. Eighteen ECC were further studied in detail.

The aim of GERIA project was to carry out a risk assessment, which is often difficult for older people, involving the identification of multiple factors that potentially affect health and quality of life, the quantification of human exposure to pollutants, and the evaluation of the individual's response to these stimuli. The results of this project contribute to the understanding of health effects due to indoor environment variables and to provide health benefits to ECC residents with relatively simple measures. The final results will be released by the end of 2016. They will then be available on the project website <http://geria.webnode.com/> in form of an e-book.

The GERIA project was supported by the Foundation for Science and Technology (Fundação para a Ciência e Tecnologia - FCT) – GERIA Project: PTDC/SAU-SAP/116563/2010.



## MEETINGS AND CONFERENCES — MEETINGS AND CONFERENCES

**2nd International Conference on Human Biomonitoring,  
17-19 April 2016 in Berlin, Germany**

Which pollutants are people exposed to nowadays and which have diminished as a result of environmental legislation? This was one of the topics more than 300 experts from 33 countries discussed on the 2nd International Conference on Human Biomonitoring from 17 to 19 April 2016 at Langenbeck-Virchow-Haus in Berlin.

On the conference entitled "Science and policy for a healthy future" international experts were brought together and critically discussed a broad variety of human biomonitoring (HBM) activities conducted worldwide.

HBM is a key information and monitoring instrument for health-related environmental protection. HBM studies deliver the scientific data necessary for making environmental policy decisions, for example on chemicals in the human organism, on population groups with particularly high levels of exposure and on the effects of the regulation of chemicals.

Because chemicals are used everywhere in the world the conference focused also on cooperating measures and programs at European and global level.

Following on from the success of the first conference in Berlin 2010, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and the German Environment Agency jointly organized this second international forum for an exchange on all aspects relating to HBM. The program comprised 23 oral presentations, 81 accepted poster presentations and two panel discussions. The large number of participants showed that both the international and domestic experts were highly interested to learn about and discuss new research results as well as the current and future role of HBM in European and international chemicals policy.

The scientific program included the following sessions:

**Session 1:** HBM programs – new developments: New results from worldwide important HBM programs were reported, including NHANES from USA, Health Canada's Human Biomonitoring Initiatives, GerES from Germany and those from France, Israel and Korea.

**Session 2:** HBM in large birth cohorts: Examples of the use of HBM to identify impacts on health in birth cohorts were illustrated with the experiences from the large birth cohorts of Japan, China, Canada and France.

**Session 3:** Broadening the HBM toolbox: In this session innovative methods in human biomonitoring were presented, ranging from developing of new and sensitive biomonitoring methods for chemicals of emerging health relevance to the role of "omics"-techniques in HBM.

**Session 4:** HBM in health risk assessment: In their presentations the experts from Canada, USA and Germany dealt with HBM data use for risk assessment, with cumulative risk assessment and with the practical use of health-related HBM-values.

**Session 5:** Harmonizing HBM approaches and data – progress in the international and Euro-



## MEETINGS AND CONFERENCES — MEETINGS AND CONFERENCES

pean landscape: Harmonization needs and efforts in the USA and from the first European-wide HBM study COPHES/DEMOCOPHES (2009-2012) were reported. Finally the European Human Biomonitoring Initiative in the EU Framework Program for Research and Innovation, Horizon 2020, was described.

The scientific program was nestled in two panel discussions. Experts from the scientific sector, politics, authorities, industry and associations examined HBM policy strategy aspects of HBM. They discussed HBM's place and potential to evaluate the population's level of protection and to identify further need for action to shape a healthy future.

The results shown in a great number of the presentations will be published in a special issue of the Journal of Hygiene and Environmental Health.

The scientific presentations, the conference proceeding including abstracts of the oral and poster presentations as well as some impressions from the conference are found now on the conference website: <https://www.umweltbundesamt.de/en/2nd-international-conference-on-human-biomonitoring-4>.

Gerda Schwedler  
German Environment Agency  
Section II 1.2: Toxicology, Health-related Environmental Monitoring  
Email: Gerda.Schwedler[at]uba.de

### **EuNetAir at EuroNanoForum 2015, 10–12 June 2015 in Riga, Latvia**

COST Action TD1105 EuNetAir, represented by Action Chair (Michele Penza, ENEA, Italy), participated with an Invited Talk on the Action overview in the COST Workshop devoted to COST Highlights on Nanotechnology and Advanced Materials, managed by COST Association, during the conference EuroNanoForum 2015 (ENF 2015), organized by European Commission and held June 2015 in Riga (Latvia). This COST Workshop, chaired by the Science Officer Maria Moragues Canovas, was attended by several speakers from Action, Head of COST Science Operations (Prof. Tatiana Kovacicova), together with about 100 participants. It was a sound opportunity to disseminate EuNetAir networking activities in a targeted audience at European top-class. ENF 2015 was attended by about 1000 delegates.

For further information, please see the link to the COST workshop ENF 2015:  
<http://euronanoforum2015.eu/session/workshop-cost-highlights/>

Michele Penza  
MC Chair/Proposer of COST Action TD1105 'EuNetAir'  
ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Technical Unit for Materials Technologies - Brindisi Research Centre  
Email: michele.penza[at]enea.it

## PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS

PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS

**WHO Expert Consultation: Available evidence for the future update of the WHO Global Air Quality Guidelines (AQGs)**

by WHO (World Health Organization), 2015. Available in English (PDF), 670.4 kB.

WHO Air Quality Guidelines (AQGs) are used as a reference tool to help decision-makers across the world in setting standards and goals for air quality management. Their regular update is essential to continue protecting populations from the adverse health effects of air pollution. In the last years, new evidence has emerged on the health effects of ambient air pollutants. In September 2015 WHO organized a global consultation meeting to seek expert opinion on the latest available evidence on the health effects of several ambient air pollutants and on interventions to reduce air pollution. The results from this consultation will contribute to the thinking behind the future update of the AQGs.

<http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2016/who-expert-consultation-available-evidence-for-the-future-update-of-the-who-global-air-quality-guidelines-aqgs-2016>

**Health risk assessment of air pollution. General principles**

by WHO (World Health Organization), 2016. Available in English (PDF), 1.1 MB. Russian (PDF), 1.2 MB. ISBN 978 92 890 5131 6. This publication is only available online.

An air pollution health risk assessment estimates the health impact to be expected from measures that affect air quality, in different socioeconomic, environmental and policy circumstances. It is therefore an important tool for informing public policy decisions. This publication introduces the concept of air pollution health risk assessment, describes in broad terms how the health risks of outdoor air pollution and its sources are estimated, and gives an overview of the general principles for the proper conduct of an assessment for various scenarios and purposes. The information is aimed at a broad audience of readers who do not need to know how to apply the tools, but seek a general understanding of the concepts, scope and principles of such assessments.

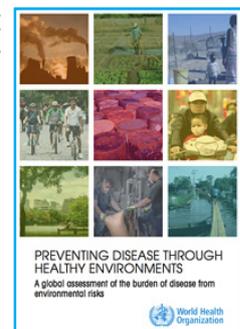
<http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2016/health-risk-assessment-of-air-pollution.-general-principles-2016>

**Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks**

by WHO (World Health Organization), 2015. Available in English (PDF), 790.4 kB.

The main message emerging from this new comprehensive global assessment is that premature death and disease can be prevented through healthier environments – and to a significant degree. Analysing the latest data on the environment-disease nexus and the devastating impact of environmental hazards and risks on global health, backed up by expert opinion, this report covers more than 100 diseases and injuries.

[http://www.who.int/quantifying\\_ehimpacts/publications/preventing-disease/en/](http://www.who.int/quantifying_ehimpacts/publications/preventing-disease/en/)



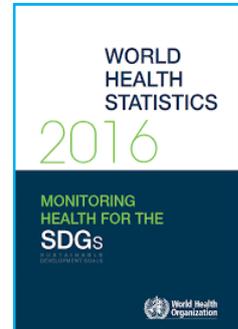
## PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS

**World Health Statistics 2016: Monitoring health for the SDGs**

by WHO (World Health Organization), 2016.

The World Health Statistics series is WHO's annual compilation of health statistics for its 194 Member States. World Health Statistics 2016 focuses on the proposed health and health-related Sustainable Development Goals (SDGs) and associated targets. It represents an initial effort to bring together available data on SDG health and health-related indicators. In the current absence of official goal-level indicators, summary measures of health such as (healthy) life expectancy are used to provide a general assessment of the situation.

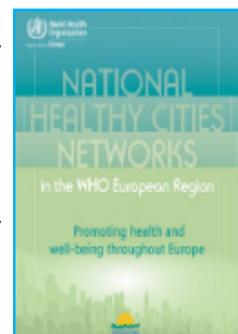
[http://www.who.int/gho/publications/world\\_health\\_statistics/2016/en/](http://www.who.int/gho/publications/world_health_statistics/2016/en/)

**National healthy cities networks in the WHO European Region. Promoting health and well-being throughout Europe**

by Leah Janss Lafond, 2015. Available in English (PDF), 2.02 MB. ISBN 978 92 890 5102 6. This publication is only available online.

National healthy cities networks form the backbone of the healthy cities movement in Europe. National networks overcome barriers to the local implementation of WHO-inspired and national policy frameworks by providing technical and strategic support to their city members, with the direct engagement of local politicians. Every national network has developed according to the unique needs of its member cities, its available resources and its cultural and legal framework. This book has two parts: the analysis of the multifaceted work and achievements of 20 WHO-accredited national networks and a profile of each of them, focusing on its organization, special features and achievements.

<http://www.euro.who.int/en/health-topics/environment-and-health/urban-health/publications/2015/national-healthy-cities-networks-in-the-who-european-region.-promoting-health-and-well-being-throughout-europe-2015>

**City fact sheets: WHO European Healthy Cities Network**

by Evelyne de Leeuw, Nicola Palmer and Lucy Spanswick, 2015. ISBN 978 92 890 5097 5. This publication is only available online.

This publication is a compilation of facts about 100 cities in nearly 30 of the 53 countries in the WHO European Region that were members of the WHO European Healthy Cities Network in Phase V. It includes data on population, economic stability, twinning with other cities, activity and longevity in the Network, and core data on social and environmental determinants of health.

<http://www.euro.who.int/en/health-topics/environment-and-health/urban-health/publications/2015/city-fact-sheets-who-european-healthy-cities-network>



## PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS

**Other Publications:****Air quality in Europe - 2015 Report - EEA Report No 5/2015**

by EEA (European Environment Agency), Copenhagen, 2015

This report presents an updated overview and analysis of air quality in Europe. It is focused in the state in 2013 and the development from 2004 to 2013. It reviews progress towards meeting the requirements of the air quality directives. An overview of the latest findings and estimates of the effects of air pollution on health and its impacts on ecosystems is also given.

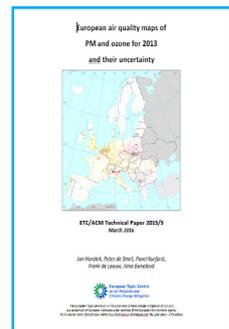
[http://acm.eionet.europa.eu/reports/EEA\\_Rep\\_5\\_2015\\_AQinEurope](http://acm.eionet.europa.eu/reports/EEA_Rep_5_2015_AQinEurope)

**European air quality maps of PM and ozone for 2013 and their uncertainty ETC/ACM Technical Paper 2015/5**

by ETC on Air Pollution and Climate Change Mitigation (ETC/ACM), March 2016, 101 pp.

The paper provides the annual update of the European air quality concentration maps, probabilities of exceeding relevant thresholds and population exposure estimates for human health related indicators of pollutants PM<sub>10</sub> (annual average, 36th highest daily average), PM<sub>2.5</sub> (annual average) and ozone (26th highest daily max. 8-hr running average, SOMO35), and vegetation related indicators (AOT40 for crops and for forests for the year 2013). The exposure estimates are compared to the results of previous years 2005-2011. The analysis is based on interpolation of annual statistics of the 2013 observational data reported by EEA Member countries in 2014 and stored in the Air Quality e-reporting database. 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://acm.eionet.europa.eu/reports/ETCACM\\_TP\\_2015\\_5\\_AQMMaps2013](http://acm.eionet.europa.eu/reports/ETCACM_TP_2015_5_AQMMaps2013)

**Joint Actions for Air Quality and Climate Mitigation in Europe ETC/ACM Technical Paper 2015/7**

by ETC on Air Pollution and Climate Change Mitigation (ETC/ACM), November 2015, 125 pp.

The present document aims at assessing the level of awareness in Europe about joint actions to improve air quality and mitigate climate change. Background information on short lived climate pollutants (SLCP) is provided, as well as a detailed list of measures offering cobenefits or trade-off for air quality and climate mitigation. An analysis of the situation in European countries is also performed together with selected case studies for Nordic countries. There are a number of international activities to foster action on SLCP, but at present only Norway has developed a concrete national action plan. The level of awareness on synergies is higher and it should be noted that most countries have identified potential synergies for air quality in their greenhouse gas mitigation plans.

[http://acm.eionet.europa.eu/reports/ETCACM\\_TP\\_2015\\_7\\_SLCPAActionPlans](http://acm.eionet.europa.eu/reports/ETCACM_TP_2015_7_SLCPAActionPlans)



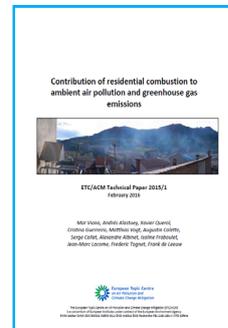
## PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS — PUBLICATIONS

## Contribution of residential combustion to ambient air pollution and greenhouse gas emissions - ETC/ACM Technical Paper 2015/1

by ETC on Air Pollution and Climate Change Mitigation (ETC/ACM), April 2016, 80 pp.

The contribution of the residential combustion sector to ambient air pollution and greenhouse gas (GHG) emissions in Europe are assessed in this paper. From a climate perspective, biomass as a residential fuel has clear benefits since it is a (nearly) CO<sub>2</sub>-neutral source of energy. However, increased use of biomass in residential combustion contributes considerably to adverse effects on human health, particularly in densely populated areas. This paper aims to provide an up to date overview of the contribution of domestic combustion to ambient air pollution and GHG emissions and of the regulatory framework in place to mitigate air pollutant emissions from solid fuel use in domestic households.

[http://acm.eionet.europa.eu/reports/ETCACM\\_TP\\_2015\\_1\\_residential\\_combustion](http://acm.eionet.europa.eu/reports/ETCACM_TP_2015_1_residential_combustion)



## Guidelines for healthy environments within European schools

by European Commission, 2014.

This document describes the guidelines framework for healthy environments within European schools which was developed within SINPHONIE (Schools Indoor Pollution and Health – Observatory Network in Europe) project. Its objective is to provide a reference guide which links together both coherently and comprehensively the most up-to-date knowledge informed by the outcome of the SINPHONIE project. This includes key drivers and prevention, control, remediation and communication strategies for a healthy school environment in Europe. These guidelines for healthy environments within European schools are primarily directed at the relevant policy-makers at both European and national levels and at local authorities aiming to improve the indoor school environment in their countries while respecting the specificities (environmental, social, economic) of their national and local situations. A second target group which is expected to benefit directly from these guidelines includes school-building designers and managers (responsible for the design, construction and renovation of school buildings), schoolchildren and their parents, teachers and other school staff. Users of this guidance should consult relevant national guidance in the first instance and use this publication to access supplementary information.

[http://ec.europa.eu/health/healthy\\_environments/docs/2015\\_guidelines\\_healthyenvironments\\_eu\\_schools\\_en.pdf](http://ec.europa.eu/health/healthy_environments/docs/2015_guidelines_healthyenvironments_eu_schools_en.pdf)

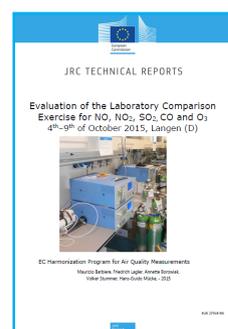


## Evaluation of Laboratory Comparison Exercise for NO/NO<sub>2</sub>, SO<sub>2</sub>, CO and O<sub>3</sub>

by European Commission, Joint Research Centre, 2015.

From 4 to 9 October 2015 seven Laboratories of the World Health Organization (WHO) European-Region met for another joint JRC-ERLAP/WHO inter-laboratory comparison exercise (IE). They met at the National Air Quality Reference laboratory at the German Federal Environment Agency in Langen, Germany, to evaluate their proficiency in the analysis of inorganic gaseous pollutants (NO, NO<sub>2</sub>, SO<sub>2</sub>, CO and O<sub>3</sub>) covered by the European Air Quality Directive 2008/50 EC and recent revision 2015/1480/EC. Comparability of results among participants (reproducibility) at the highest concentration level, excluding outliers, is acceptable for CO and SO<sub>2</sub> measurements while NO<sub>2</sub>, NO and O<sub>3</sub> one showed less satisfactory results.

<https://ec.europa.eu/jrc/en/publication/evaluation-laboratory-comparison-exercise-no-no2-so2-co-and-o3-4th-9th-october-2015-langen-d>





## COMING EVENTS — COMING EVENTS — COMING EVENTS — COMING EVENTS

## 2016

**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/>

**28th Conference of the International - Society for Environmental Epidemiology**

1–4 September, Rom, Italy, <http://www.iseepi.org/Conferences/future.htm>

**8th International Conference on Children´s Health and the Environment (INCHES)**

14–16 September, Barcelona, Spain, <https://www.activacongresos.com/forms/abstractinchesbcn2016/>

**26th Annual ISES Conference - Interdisciplinary Approaches to Health and the Environment**

9–13 October, Utrecht, The Netherlands, [http://www.isesweb.org/Meetings/mtgs\\_cur.htm](http://www.isesweb.org/Meetings/mtgs_cur.htm)

## 2017

**24th International Conference on Modelling, Monitoring and Management of Air Pollution - Air Pollution 2017**

25–27 April, Cadiz, Spain, [http://www.wessex.ac.uk/conferences/2017/air-pollution-2017?utm\\_source=wit&utm\\_medium=email&utm\\_campaign=air17cfp&uid=%25REALNAME%25](http://www.wessex.ac.uk/conferences/2017/air-pollution-2017?utm_source=wit&utm_medium=email&utm_campaign=air17cfp&uid=%25REALNAME%25)

**ICAPC 2017: 19th International Conference on Air Pollution and Control**

25–26 May, London, United Kingdom, <http://waset.org/conference/2017/05/london/ICAPC>

**Healthy Buildings 2017 Europe**

2–5 July, Lublin, Poland, <http://www.hb2017-europe.org/>

**29th Conference of the International - Society for Environmental Epidemiology**

24–28 September, Sydney, Australia, <http://www.iseepi.org/Conferences/future.htm>