NEWSLETTER

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

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EDITORIAL

World Health Organization re-launched the European Centre for Environment and Health in Bonn

Mid-February 2012, the European Centre for Environment and Health (WHO/ECEH) has been re-opened at the UN in Bonn, Germany. The centre was initially opened in 1991 with support from Italy, France and the Netherlands. After the closure of the offices in Nancy/France and Bilthoven/the Netherlands, the Government of Germany funded the office in Bonn, which started its operation in 2001. Following the closure of the Rome office in December 2011, respective duties and responsibilities have been transferred to the WHO/ECEH Bonn office.

14 February 2012: Zsuzsanna Jakab, WHO Regional Director for Europe at the WHO/ECEH opening celebration together with the German Federal Ministers for Health, Daniel Bahr, and for the Environment, Norbert Röttgen, and the mayor of the UN city Bonn, Jürgen Nimptsch

The German government has substancially increased their financial support to WHO/ECEH because environmental problems have still a major impact on human health in the European Region. The centre is part of the WHO Regional Office for Europe, Copenhagen. It focuses on the effects of environmental risks to human health in 53 member states in Europe, Caucasus and Central Asia.

For more than two decades, the WHO/ECEH has provided the scientific and organizational support to the European process on environment and health initiated at the First Ministerial Conference held 1989 in Frankfurt/Main, Germany. This process has ensured political commitment from all countries to address environmental hazards and lead policy development and action.

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The renewed WHO/ECEH now broadens its scope around four main areas:
- climate change, sustainable development and green health services
- exposure to key environmental risks of air and noise pollution, chemicals, radiation, and inadequate housing and working conditions
- environment and health intelligence and forecasting, and
- management of natural resources and health - water and sanitation.

These four newly established programme areas will strengthen work on the nature and magnitude of existing and emerging environmental hazards, and will assist countries in the WHO European Region in identifying and implementing policies to address those.

The WHO Collaborating Centre for Air Quality Management and Air Pollution Control at the German Federal Environment Agency (UBA) has been re-designated for a new four year period of work in February 2012. It is our great pleasure to continue providing scientific assistance and support, as well as to participate actively in the above mentioned re-launched work programmes related to Environment and Health at WHO/ECEH in Bonn, particularly in the areas air, noise, housing and climate change, and thus further develop recommendations and policies to protect public health in the WHO European Region.

Andreas Gies and Hans-Guido Mücke
WHO Collaborating Centre for
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ABOUT

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NOTE

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

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WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH EXPANDED ITS OPERATIONS

Michal Krzyzanowski

Over the years, the WHO European Centre for Environment and Health (ECEH) has coordinated the collection and analysis of scientific evidence on exposure to environmental risks and health effects, to underpin policy-making within the European Region, which covers nearly 900 million people in 53 countries, stretching from the Arctic Ocean in the north, the Mediterranean in the south, the Atlantic Ocean in the west and the Pacific Ocean in the east.

The centre
- estimated that, on average, each European citizen loses 8.6 months of life expectancy due to levels of air pollution higher than those recommended by WHO;
- concluded that traffic-related noise accounts for over 1 million healthy years of life lost annually in western Europe; and
- found that inadequate housing accounts for over 100 000 deaths per year in the European Region.

Furthermore, ECEH produced WHO guidelines on various items to support policy-making in Europe and other regions of the world. ECEH provides scientific and organizational support to the European process on Environment and Health initiated by the First Ministerial Conference in Frankfurt/Main, Germany in 1989. In 1991 the WHO Regional Office for Europe, Copenhagen established ECEH offices in Rome, Nancy and Bilthoven with support from Italy, France and the Netherlands. After the closure of the offices in France and the Netherlands, the Government of Germany funded the office in Bonn, which started operations in 2001, complementing the work of the office in Rome, Italy. Following the closure of the Rome office in 2011, the Bonn office expanded its scope in February 2012 to cover a broad range of environment and health topics.

For over 20 years, the European process on Environment and Health has ensured political commitment from all countries to address environmental hazards and lead policy development and action. At the Fifth Ministerial Conference 2010 in Parma, Italy, for the first time in the history of the process, the 53 countries of the WHO European Region have agreed to be measured against time-bound, concrete targets. Through the Parma Declaration, they pledge to provide each child with equal access to healthy environments during the next decade by acting on the "key environment and health challenges of our time, including climate change, emerging issues and the effects of the economic crisis".

This unique, robust commitment is bound to the future of the European Environment and Health process oriented towards "health in all policies", which gains a higher political profile through the direct engagement of government ministers within a newly established European Environment and Health Ministerial Board.

Through the grateful acknowledged additional funding from Germany, ECEH is broadening the scope of its work on four main areas: climate change and sustainable development, exposure to key environmental risks (air pollution, noise, chemicals, radiation, inadequate working conditions and poor housing), environmental health intelligence and forecasting, and the management of natural resources, including water and sanitation. The programmes addressing these areas will strengthen their work on the nature and magnitude of current and emerging environmental health hazards, to assist European countries in making and carrying out policies to address them. With increasing environmental emergencies - the Icelandic volcanic ash, the wildfires and heat-waves in the Russian Federation, and the Hungarian sludge spill are recent examples – the centre will also boost its capacity on emergency preparedness, response and recovery, facilitating collaboration among countries and transfer of experiences.

As such, ECEH wants to assist the WHO European Member States in making progress towards poverty reduction by addressing the environment as one of the most important health determinants linked to poverty; implementing strategic objectives in the area of climate change, with a focus on reducing greenhouse gas emissions in the health and environment sectors; preparing for and responding to environmental health emergencies; redressing the centrality of environment and health within health systems and across other sectors of governments; and calling for better environment and health justice, increased investments in environmental health and higher protection for the most vulnerable groups.

All ECEH environment and health programmes have long-standing collaboration with institutions active in the European Region: international organizations, such as the Organization for Economic Co-operation and Development (OECD); the European Commission and its Agencies; other agencies of the United Nations like those here represented; non-governmental organizations; media and foundations, as well as leading academic institutions and WHO Collaborating Centers; and continue exploring opportunities for new partnerships based on shared health values and objectives.

See also

- European Centre for Environment and Health, Bonn, Germany http://www.euro.who.int/en/who-we-are/who-european-centre-for-environment-and-health,-bonn,-germany
- Fifth Ministerial Conference on Environment and Health http://www.euro.who.int/en/what-we-do/event/fifth-ministerial-conference-on-environment-and-health

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NEW EMISSION REDUCTION COMMITMENTS FOR FINE PARTICULATE MATTER AND OTHER MAIN AIR POLLUTANTS FOR 2020 AND BEYOND

Krzysztof Olendrzynski, Albena Karadjova and Alina Novikova

In early May 2012, the Executive Body for the United Nations Economic Commission for Europe / UN ECE Convention on Long-range Transboundary Air Pollution (LRTAP) concluded its thirtieth session adopting amendments to the Convention's 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone. Following years of negotiations, the approved revised text of the Protocol will now include national emission reduction commitments for main air pollutants to be achieved by the UN ECE Parties in 2020 and beyond. The revised Protocol will include emission reduction commitments for fine particulate matter (PM2.5), the pollutant which ambient air concentration notoriously exceeds WHO air quality guidelines not only throughout Europe, but also in Asia and elsewhere.

Fine particulate matter includes particles found in air that are less than 2.5 micrometres in diameter. They are also referred to as "respirable" particles, because they penetrate deep into the respiratory system. Adverse health effects have been associated with exposure to fine particulate matter over both short periods (such as a day) and longer periods (a year or more). Health effects of fine particles include coughing or difficulty breathing; chronic bronchitis; and premature death in people with heart or lung disease. Fine particulate matter is also responsible for environmental effects such as corrosion and soiling, damage to vegetation and reduced visibility (haze).

Moreover, the Parties have broken new ground in international air pollution policy by specifically including the short-lived climate forcer, black carbon (or soot), as a component of particular matter. Black carbon is known as a short-lived climate forcer, because it has a strong warming effect but does not persist in the atmosphere as long as carbon dioxide. In the global context of glacier melting, reduced ice mass at the Poles, curbing black carbon emissions is an important objective in tackling climate change on a short-time frame.

In addition to emission ceilings on fine particulate matter, several of the Protocol's technical annexes were revised with updated sets of emission limit values for both key stationary sources of air pollution (such as factories and processing plants) and mobile sources (such as vehicles and non-road mobile machines and agricultural and forestry tractors).

National emission reduction commitments and emission levels for 2005 for 27 EU member states as well as for Belarus, Croatia, Norway and Switzerland are shown in the Table 1. Other LRTAP Parties that intend to become Parties to the revised Protocol – notably Canada, United States, Russian Federation and countries in Southern and Eastern Europe, the Caucasus and Central Asia, will need to provide their respective 2005 data and commitments figures upon ratification of or accession to the amended Protocol.

EU as a whole is going to reduce its emissions of sulphur dioxide, nitrogen dioxide, ammonia, volatile organic compounds and PM2.5 by 59, 42, 6, 28 and 22%, respectively. The United States provisionally indicated that it is aiming for a similar level of ambition to the EU with respect to its reduction commitments.

Climate Change is a global and long-term problem, but combating it can be also successfully done on shorter time scales and through implementing abatement policies on a regional scale first - and then in other regions.

	SO2		NOx		NH3		VOCs		PM2.5	
	Emission levels 2005	Reduction from 2005 level	Emission levels 2005	Reduction from 2005 level	Emission levels 2005	Reduction from 2005 level	Emission levels 2005	Reduction from 2005 level	Emission levels 2005	Reduction from 2005 level
Belarus	79	20%	171	21%	136	7%	349	15%	46	10%
Croatia	63	55%	81	31%	40	1%	101	34%	13	18%
Norway	24	10%	200	23%	23	8%	218	40%	52	30%
Switzerland	17	21%	94	41%	64	8%	103	30%	11	26%
Austria	27	26%	231	37%	63	1%	162	21%	22	20%
Belgium	145	43%	291	41%	71	2%	143	21%	24	20%
Bulgaria	777	78%	154	41%	60	3%	158	21%	44	20%
Cyprus	38	83%	21	44%	5.8	10%	14	45%	2.9	46%
Czech Rep.	219	45%	286	35%	82	7%	182	18%	22	17%
Denmark	23	35%	181	56%	83	24%	110	35%	25	33%
Estonia	76	32%	36	18%	9.8	1%	41	10%	20	15%
Finland	69	30%	177	35%	39	20%	131	35%	36	30%
France	467	55%	1,430	50%	661	4%	1,232	43%	304	27%
Germany	517	21%	1,464	39%	573	5%	1,143	13%	121	26%
Greece	542	74%	419	31%	68	7%	222	54%	56	35%
Hungary	129	46%	203	34%	80	10%	177	30%	31	13%
Ireland	71	65%	127	49%	109	1%	57	25%	11	18%
Italy	403	35%	1,212	40%	416	5%	1,286	35%	166	10%
Latvia	6.7	8%	37	32%	16	1%	73	27%	27	16%
Lithuania	44	55%	58	48%	39	10%	84	32%	8.7	20%
Luxemburg	2.5	34%	19	43%	5.0	1%	9.8	29%	3.1	15%
Malta	11	77%	9.3	42%	1.6	4%	3.3	23%	1.3	25%
Netherlands	65	28%	370	45%	141	13%	182	8%	21	37%
Poland	1,224	59%	866	30%	270	1%	593	25%	133	16%
Portugal	177	63%	256	36%	50	7%	207	18%	65	15%
Romania	643	77%	309	45%	199	13%	425	25%	106	28%
Slovakia	89	57%	102	36%	29	15%	73	18%	37	36%
Slovenia	40	63%	47	39%	18	1%	37	23%	14	25%
Spain	1,282	67%	1,292	41%	365	3%	809	22%	93	15%
Sweden	36	22%	174	36%	55	15%	197	25%	29	19%
UK	706	59%	1,580	55%	307	8%	1,088	32%	81	30%
EU	7,828	59%	11,354	42%	3,813	6%	8,842	28%	1,504	22%

Table 1: 2005 emission levels (expressed in thousands of metric tonnes) and national emission reduction commitments in 2020 and beyond (expressed as percentage reduction from 2005 levels)

One of the Convention's priorities is to provide assistance to countries in Southern and Eastern Europe, the Caucasus and Central Asia in ratifying and implementing various protocols under the Convention. The revised Gothenburg Protocol includes specific provisions on flexibilities to implement emission standards for these countries that should facilitate the ratifications and implementation of the Protocol. For example, a Party - a newcomer to the Protocol - may declare upon ratification of the amended Protocol that it will extend any or all of the specified timescales for application of the emission limit values. Depending on the emission source or pollutant, the derogation period may be extended up to 5-15 years after the date of entry, at which the Protocol turned into force for the Party in question. For new stationary sources the application timescale will be one year.

In 2007, to encourage and facilitate ratification of the Convention's three most recent protocols (Gothenburg, Heavy Metals and Persistent Organic Pollutants) in Eastern Europe, the Caucasus and Central Asia (EECCA), the Executive Body adopted the Action Plan for EECCA (ECE/EB.AIR/WG.5/2007/17).

The Action Plan aims at:
- raising political profile of the Convention in the EECCA region;
- encouraging ratification of the Convention's most recent protocols;
- increasing cooperation and exchange of information through expanding the modeling and monitoring activities;
- supporting the EECCA countries involvement in the activities of the Convention.

In 2010, the Executive Body adopted a long-term strategy, which recognizes the importance of a positive and vigorous participation by the Parties in all parts of the region. It sets out - as one of its strategic priorities - the increased ratification and related implementation in the EECCA countries and South-Eastern Europe (SEE). It stated that measures and action to facilitate wider ratification and implementation in the EECCA and SEE countries including financial support, will be pursued vigorously.

Since 2007 several projects have been initiated and implemented following the Action Plan. However, more projects are needed and therefore the Executive Body continues to request Parties and other donors to make contributions to help finance projects within the scope the Action Plan and in line with the long-term strategy if the Convention.

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EUNetAir – European Network on New Sensing Technologies for Air Pollution Control and Environmental Sustainability

The aim of this new EU COST Action TD1105 (2012-2015) is to form a European-wide science and technology knowledge platform by a multidisciplinary coordinated network at international level on new sensing technologies for Air Quality Control.

This Action will focus on a new detection paradigm based on sensing technologies at low cost and set up an interdisciplinary top-level coordinated network to define innovative approaches in sensor nanomaterials, gas sensors and devices, wireless sensor-systems, distributed computing, methods, models, standards and protocols for environmental sustainability. The state-of-the-art showed that research on innovative sensing technologies for Air Quality Control based on advanced chemical sensors and sensor-systems at low-cost, including functional materials and nanotechnologies for eco-sustainability applications, the outdoor/indoor environment control, olfactometry, air quality modeling, chemical weather forecasting, and related standardization methods is performed already at the international level, but still needs serious efforts for coordination to boost new sensing paradigms for research and innovation. Only a close multidisciplinary cooperation will ensure cleaner air in Europe and reduced negative effects on human health for future generations in smart cities, efficient management of green buildings at low CO_2 emissions, and sustainable economic development. The objective of this Action to create a cooperative network to explore new sensing technologies for low-cost air-pollution control through field studies and laboratory experiments to transfer the results into preventive real-time control practise and global sustainability for monitoring climate changes and outdoor/indoor energy efficiency. Establishment of such a European network, involving Non-COST key-experts too, will enable EU to develop world capabilities in urban sensor technology based on cost-effective nanomaterials and contribute to form a critical mass of researchers suitable for cooperation in science and technology, including training and education, to coordinate outstanding research and development, and promote innovation towards industry, and support policy-makers. Further information can be obtained from:

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WHO involvement in EC-funded projects

The WHO programme on living environments and health is currently involved in work funded by the European Commission to
- develop guidelines for ventilation in buildings (HEALVENT), and
- assess the health impact of climate change mitigation in urban settings (URGENCHE).

Both projects look at the health impact of housing and urban interventions and how changes carried out to save energy and reduce greenhouse gas emissions can be associated with health benefits for the population. Further information on these projects can be obtained at:
http://www.healthvent.byg.dtu.dk/ and at
http://cordis.europa.eu/projects/rcn/98726_en.html

Air Quality Governance in Central and Eastern European countries

The European Community (EC) aid to southern Mediterranean, Eastern European and Southern Caucasus countries for the period 2007 to 2013. Civil society actors follow the discussions on the programming of assistance under the European Neighbourhood and Partnership Instrument (ENPI, see http://www.enpi-programming.eu/wcm/).

The EC project on Air Quality Governance in ENPI East countries, which commenced in January 2011 and is being implemented over a four-year period, supports the participating countries in improving their respective institutional and legislative frameworks to coverage to European standards and implement multilateral environmental agreements and conventions. The complementary objective is to enhance cooperation between key stakeholders in the designated region and to increase public awareness regarding air quality issues. The seven participating countries in the project are Armenia, Azerbaijan, Belarus, Georgia, The Republic of Moldova, the Russian Federation and Ukraine.

In response to the expressed needs of the countries and in line with the results of the gap analysis performed during the interception phase, a number of priorities related to air quality governance were identified for each country. These priorities serve as basis for the collaboration between the project and the countries and help to better focus the project activities throughout the project life:

- Armenia: Emission inventories; Air quality modeling; Urban air quality/transport planning
- Azerbaijan: Regulations of industrial emissions; PM10 and 2.5 monitoring; Urban air quality/transport planning
- Belarus: Technology-specific limit values; Air quality modeling; Urban air quality/transport planning
- Georgia: Air quality assessment and management legislation; CLRTAP protocols; Air protection strategy
- Republic of Moldova: Air protection cost assessment; Critical loads assessment; Urban air quality/transport planning
- Russian Federation: GAINS model; PM10 and 2.5 monitoring; Urban air quality/transport planning
- Ukraine: Advanced air quality modeling; National monitoring network; Urban air quality/transport planning.

The technical assistance of project operates with three components: Air quality assessment and management; Industry and IPPC, and transport. Building on the existing experience in the region, capacity-building and institutional strengthening appear to be crucial in order to facilitate the development and implementation of air quality governance in the partner countries. Therefore the project has developed a comprehensive training programme, including regional and national workshops, in order to create regional networks of experts and specialists and regional cooperations while addressing the needs and priorities of each individual country. The workshops focus on a variety of topics from policy formulation and approximation of legislation to transport and IPPC requirements or modeling tools.

Further information are available at: http://airqgov.org/

New EU project JOAQUIN (INTERREG IV-B NWE)

Although air quality has improved considerably in recent decades, there are many sources of air pollution which remain unsolved and airborne fine particles continue to have a significant impact on human health. It is expected that a lifetime exposure to current concentrations of particulate matter will lead to a reduction in average life expectancy of one year. Extensive transportation networks, intensive industrialisation and high population densities all contribute in making economically strong urbanized regions particularly vulnerable to air pollution. It is estimated that the costs in the EU for the treatment of lung diseases, caused directly or indirectly by poor air quality, could rise to as much as € 50 billion every year. Recent research has shown that other pollutants (even smaller, 'ultra fine particle / UFP' and 'Black Carbon / BC') are more likely to be linked to health problems than the health impacts associated with current pollutants of concern, NO_2 and PM_{10}. There is currently insufficient knowledge and a lack of understanding of how extensive UFP and BC pollution is, particularly at a local and regional level, combined with a lack of understanding of how effective current abatement measures are in improving public health.

The aim of the Joaquin (Joint Air Quality Initiative) project is to support health-oriented air quality policies in Northwest Europe. To achieve this, the project will provide policy makers with the necessary evidence on the current local and/or regional situation, provide them with best-practice policy measures that can be taken and motivate them to adapt and strengthen their current air quality policies. This will be supported by extensive exchange between the involved stakeholders and communication to/with the general public. With this project, the partners from Belgium, France, Netherlands and UK will qualitatively expand their present air quality monitoring network to include the measurement of UFP and BC. Existing air pollution abatement measures to reduce atmospheric air pollution will be re-evaluated so that (local) policy makers have a broad overview of the most effective emission reduction measures. Moreover, communication of air pollution information to the involved stakeholders and to the most vulnerable population groups, will be evaluated and expanded.

The project itself is divided into three main parts:
1. To improve the identification and to map health relevant particle pollution, the project partners will invest in new monitoring equipment. In Amsterdam, Antwerp, Brighton and Leicester existing monitoring stations will be expanded with ultramodern equipment for this purpose. In doing this assessment transnationally, the partnership will ensure that both the use of the equipment and the methodology are aligned.
2. To enable local and regional policy makers to maximize their efforts in improving air pollution and improving public health, several policy measures will be compared and ranked on efficiency (adapted to the particular situation). This will not only be based on literature studies, but also through modelling and measurement campaigns and evaluations in the field. The effects that local or regional measures may have will be investigated. Efforts will be made to advance knowledge on the topic of "indoor" air quality, especially the efficiency of the use of filters, which will be evaluated.
3. To raise awareness and understanding of air quality, significant attention will be given to communications, providing detailed information on the subject of air pollution and extensively promoting details of the project. Efforts will be made to create a large support base for the project and its objectives, with external stakeholders (interest groups/scientists) as well as policy makers (EU, national, regional, local).

More information on the project can be obtained via info[at]joaquin.eu or www.joaquin.eu.

Symposium on 'Housing and Health' 30 March 2012 in Stuttgart, Germany

How can healthy living be measured? Against the background of this question, the Baden-Wuerttemberg State Health Office in its function as a WHO Collaborating Centre for Housing and Health invited several multidisciplinary experts from the housing sector to a symposium on housing and health. As an aim of this symposium, healthy housing should be addressed from different sites in an integrative manner.

Matthias Braubach (WHO European Centre for Environment and Health, Bonn), gave an overview of the most important "healthy homes principles" (dry, clean, ventilated, pest-free, safe, contaminant-free, maintained) from WHO point of view. He showed the unequal distribution of healthy housing conditions and stressed environmental health inequalities in Europe. In addition, he critically questioned the LEED (Leadership in Energy and Environmental Design) certification ("housing label") as an example for the attempt of quantifying healthy housing, which provides, according to its website "independent, third-party verification that a building, home or community was designed and built using strategies aimed at achieving high performance and key areas of human and environmental health".

Legislations demands energy saving building constructions, and many buildings lack in natural ventilation. The resulting accumulation of moisture, microorganisms and chemicals from building products and furnishings, such as formaldehyde, wood preservatives, flame retardants and plasticizers may affect human health, particularly as people spend more than 90 % of their time indoors. The broad variety of noxious indoor substances, as well as further influencing, also psychosocial factors related with housing, was shown by Gerhard A. Wiesmüller (Umweltmedizinische Beratungsstelle, Köln).

Among the chemical air contaminants, flame retardants play an increasingly important role as many home appliances are equipped with these substances. Harold Neubrand (COPRUS COGNITO, Sachverständigengemeinschaft für Immobilien, Bauen und Umwelt, Bad Boll) gave an overview of the different substances and relevant indoor sources.

State building codes, that rule the stability of a building, fire protection requirements, and also hygiene, health and ecology, were presented by Gerhard Scheuermann (Ministerium für Umwelt, Klima und Energiewirtschaft, Baden-Wuerttemberg).

A critical view on energy refurbishment measures was made by Oliver Kulpanek (Baugenossenschaft Esslingen). Tight houses save a lot of energy, but they require a strict ventilation regime - otherwise indoor air pollution, such as dampness, mould and accumulating chemicals may damage the building and affect human health.

Philip Leistner (Fraunhofer UBP, University of Stuttgart) outlined the significance of the acoustic quality of buildings. He presented the structural requirements for noise protection, however, he stressed that some norms may be out-of-date and the acoustic quality of housing depends on various factors, which must be considered in the context of energy efficiency, ecology and economy.

Consumers and do-it-yourselfers face a bewildering variety of labels, which are awarded for ecological and health aspects of building products and there emissions. This broad field of labels, their reliability were addressed by Frank Kuebart (eco-INSTITUT). Here, the criteria of the German Committee for Health-related Evaluation of Building Products (AgBB), laid down in

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the AgBB-Schema and presented at the symposium by Christine Däumling (Umweltbundesamt, Berlin), are an essential basis for the development of harmonized standards in Europe.

The presentations and the closing panel discussion showed the complexity of the subject. A major point of discussion was the possibility for the compilation of a checklist for healthy homes. Even though a short and all-embracing checklist would be desirable, this approach was considered as unrewarding. Recommendations for improving housing conditions should be tailored to the needs and options of the different stakeholders (tenants, homeowners, architects etc.) and respond to practical measures. For processing the checklist and developing of guidelines for healthy housing, a working group is intended.

Further information of the symposium, including the presentations (in German), are available on the website of the WHO CC for Housing and Health (www.whocc-stuttgart.de).

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2nd International Workshop on 'Current and Future Air Quality Monitoring', 25 - 26 April 2012 in Barcelona, Spain

How to monitor air quality in Europe in future? Which measurement technologies will be available? Should the monitoring in networks be extended to other pollutants or health-related characteristics that yield data valuable for health effect assessments? And, if so, which instruments are best? Where do we find all relevant information?

These (and other questions) were the focus of the 2nd International Workshop 'Current and Future Air Quality Monitoring' which took place on 25 and 26 April in Barcelona, Spain. The workshop was organized by 'AirMonTech' (http://www.airmontech.eu), an EU FP7 project. The first AirMonTech workshop was successfully held in December 2010 in London (UK).

With the revision of the European thematic strategy "Clean Air for Europe" and discussion on a revision of the AQ Directive coming up after 2013, AirMonTech is developing recommendations on future urban air quality monitoring and strategy. Its consortium has first compiled information on air quality metrics, as well as current and future measurement technologies. Pollutant metrics, instrument performance, tests, operating procedures etc are now being stored in a specifically-designed database (http://db-airmontech.jrc.ec.europe.eu/index.aspx) which will become available on the internet offering a unique and valuable source of knowledge for all stakeholders, such as monitoring networks, NGOs, manufacturers, developers, policy advisers and all interested people. Simultaneously, a road map with recommendations for the future monitoring in the EU is being developed.

The database and progress made so far were presented and evaluated at this workshop, as part of an interactive dissemination process involving the relevant stakeholder groups. In addition, there were presentations on health issues, personal monitoring, certification, new metrics, usage of sensors and other innovative techniques.

During the workshop the options for integrating air quality monitoring with health effect studies were extensively discussed. It was shown that results of epidemiological research largely depend on the measurements provided by monitoring networks. As a consequence, regulated pollutants are better studied than other pollutants that may be as important. As there is still a substantial lack of knowledge, the design of monitoring networks in future should take into account the needs of health research, while not neglecting the task of ensuring compliance with air quality standards.

It was stated that health studies need more data on personal air pollution exposure, requiring high temporal and spatial resolution. Different categories of monitoring sites should therefore be considered, e.g. by creating ”supersites” with appropriate geographic coverage that include the measurement of health-related parameters (like ultrafine particles, elemental carbon, reactive oxygen species formation potential) in a harmonized manner. These sites could be complemented by mobile measurement units and sensor technologies to give a better spatial distribution, and also with data from remote sensing and dispersion modelling. Knowledge of people’s time-activity-location patterns is also required and needs to be combined with knowledge of concentrations in various microenvironments. The technique of personal monitoring has been demonstrated and shown to be valuable, when combined with smart-phone technology, in providing data for exposure modelling.

This workshop attracted more than 100 participants from all over Europe, forming a mixed audience of health experts, scientists, instrument manufacturers and developers, as well as representatives from national and EU administrations. The presentations of the individual speakers are available for download at http://www.airmontech.eu/publications.

The 3rd AirMonTech workshop will take place in March 2013 in Duisburg, Germany. Detailed information on the programme will be made public in the next issue of the WHO Newsletter.

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WHO Workshop on ‘Health aspects of wildfire smoke’, 21 May 2012 in Bonn, Germany

A Workshop on ‘Health aspects of wildfire smoke’ was organized jointly by the National Institute for Health and Welfare (THL), Finland, and the WHO European Centre for Environment and Health in Bonn on 21 May 2012, back-to-back with the 15th Meeting of the Task Force for Health (TFH) of the UNECE Convention on Long-range Transboundary Air Pollution (22-23 May 2012). This provided an opportunity for interaction between the scientific experts and representatives of the Parties to the Convention. The term “landscape fires” that is commonly used among fire experts encompasses wild and prescribed forest fires, tropical deforestation fires, peat fires, agricultural burning and grass fires. Therefore, it is systematically used in this Workshop report.

Newly applied satellite techniques to assess emissions from landscape fires and the utilization of real-time meteorological data to assess smoke transport allow spatially and temporally accurate modeling of smoke dispersion and forecasting with reasonable uncertainty of the resulting fine particle (PM2.5; size ≤ 2.5 micrometres in diameter) concentrations for the whole Europe24-48 hours in advance (http://silam.fmi.fi/).

Analyses from Canada indicate that smoke forecasts also predict respiratory health responses in affected populations, suggesting the utility of forecasts for public health response measures.

The daily averaged emissions of PM2.5 from landscape fires (~7.5 ktons/day) in Europe are nearly as large as the similarly averaged total PM2.5 emissions (~9 ktons/day) from registered anthropogenic sources in 2006-2008 [1]. The highest daily peaks of PM2.5 emissions in dry summer periods were 200 – 400 ktons. The smoke from nearby or distant (up to 500-1000 km) landscape fires usually increases daily PM2.5 or PM10 concentrations in smaller or larger areas by 5- to 20-fold and the hourly peak concentrations can rise to hundreds of microgrammes or even up to 1-2 milligrammes per cubic metre.

The building shell without mechanical air ventilation plus PM filtration or air conditioning reduces the outdoor-to-indoor penetration of smoke PM2.5 by about 20-30 %, but substantially lower indoor PM2.5 concentrations can be achieved by the use of more effective than conventional air filters in buildings or by using effective HEPA filter room air cleaners. The suddenly starting, but sometimes several-week-long increases in PM2.5 or PM10 concentration have been associated with increased symptoms and reliever medication use as well as increased outpatient visits to doctor and hospital visits, especially among subjects with bronchial asthma. The most recent epidemiological studies suggest that PM2.5 from landscape fires is also associated with increased mortality and that there may be an additive effect on mortality with simultaneous heat wave. A 10-day episode of long-range transported smoke from landscape fires has recently been associated with acute systemic inflammation in blood among ischemic heart disease patients.

It has been estimated that mainly long-term exposure to PM2.5 from landscape fires causes globally 339,000 (range 262,000 to 532,000) excessive deaths per year, mostly in Sub-Saharan Africa and South-East Asia [2]. In Europe, the excess mortality from exposure to landscape fire smoke PM2.5 has been estimated at 12,800 (range 11,600 – 22,700) per year.

The Task Force for Health suggests strengthening of interdisciplinary collaboration between experts and professionals on health and experts on landscape fire assessment and management, such as the European Forest Fire Information System and the Global Wildland Fire Network. The improved co-operation would greatly enhance the capabilities to mitigate severe health effects in the vulnerable groups and impaired well-being in the general population, particularly in countries such as those in Southern Mediterranean and Eastern Europe, where landscape fires are a prominent feature.

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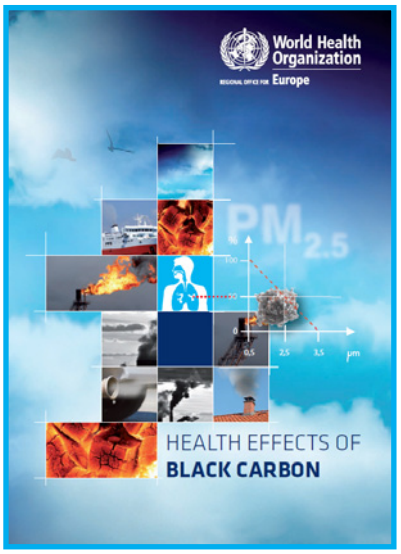
[1] Sofiev et al. 2009: Atmos Chem Phys, Vol. 9, No. 18, pp. 6833-6847
[2] Johnston FH et al. 2012: Environ Health Perspect, Vol. 120, No. 5, pp. 695-701

Health effects of black carbon

By Nicole AH Janssen, Miriam E Gerlofs-Nijland, Timo Lanki, Raimo O Salonen, Flemming Cassee, Gerard Hoek, Paul Fischer, Bert Brunekreef and Michal Krzyzanowski
2012, viii + 86 pages, ISBN 978 92 890 0265 3, Free of charge. Available in English (PDF), 2.1 MB

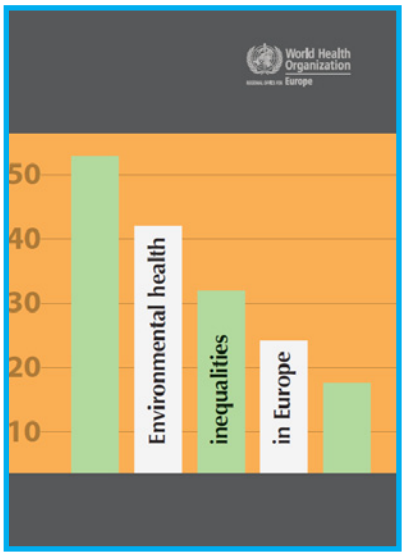


Black carbon is a good indicator of combustion-related air pollution, and was only recently recognized as a short-lived climate-forcer, which contributes to warming the Earth's atmosphere.

This report presents the results of a systematic review of evidence of the health effects of black carbon in ambient air. Epidemiological studies provide sufficient evidence of the association of cardiopulmonary morbidity and mortality with exposure to black carbon. Toxicological studies suggest that black carbon may operate as a universal carrier of a wide variety of chemicals of varying toxicity to the human body. Although black carbon may not be a major, directly toxic component of fine particulate matter, reducing people's exposure to particulate matter containing black carbon should reduce its effects on their health, as well as helping to mitigate climate change.
This review is of particular interest to environmental health professionals concerned with assessing and reducing the health effects of air pollution, as well as to those who use scientific evidence in support of climate change mitigation policies.

Environmental health inequalities in Europe. Assessment report

2012, xiv + 192 pages, ISBN 978 92 890 0260 8, Free of charge. Available in English (PDF), 4.3 MB



The unequal distribution of people's exposure to – and potentially of disease resulting from – environmental conditions is strongly related to a range of sociodemographic determinants. Interventions to tackle such environmental health inequalities need to be based on an assessment of their magnitude and on the identification of population groups that are most exposed or most vulnerable to environmental risks. But data are scarce.
To address this gap, and follow up on the commitments made at the Fifth Ministerial Conference on Environment and Health in Parma, Italy in 2010, the WHO Regional Office for Europe has carried out a baseline assessment of the magnitude of environmental health inequality in the European Region based on a core set of 14 inequality indicators.
The main findings indicate that socioeconomic and demographic inequalities in risk exposure are present in all countries, though they vary from country to country. The report reviews inequalities related to housing, injuries, and the environment, identifies gaps in evidence that still need to be filled, and suggests priority action to be taken at both the subregional and the national level, bearing in mind those national variations.

2012

Environmental Impact 2012 – First International Conference on Environmental and Economic Impact on Sustainable Development
2-4 July, New Forest, United Kingdom, http://www.wessex.ac.uk/impact2012cfp.html

Healthy Buildings 2012
10th International Conference on Indoor Air Quality and Climate
8-12 July, Brisbane, Queensland, Australia, http://www.hb2012.org

24th Annual Conference
International Society for Environmental Epedemiology
26-30 August, Columbia, South Carolina, http://iseepi.org

Fourth Air Quality Management and IUAPPA Conference
10-13 September, Istanbul, Turkey, http://www.iuappa.org/index.html

2013

AQE 2013 – The Air Quality Show - Conference, Exhibition and Workshops
13-14 March, Telford, United Kingdom, http://www.aqeshow.com/index/

Environmental Health Risk 2013
7th International Conference on the Impact of Environmental Factors on Health
23-25 April, Budapest, Hungary, http://www.wessex.ac.uk/ehr2013rem1.html

Urban Transport 2013
19th International Conference on Urban Transport and the Environment
29-31 May, Kos, Greece, http://www.wessex.ac.uk/transport2013cfp.html

Air Pollution 2013
21st International Conference on Modelling, Monitoring and Management of Air Pollution
3-5 June, Siena, Italy, http://www.wessex.ac.uk/air2013cfp.html

Environment and Health - Bridging South, North, East and West
Conference of ISEE, ISES and ISIAQ
19-23 August, Basel, Switzerland, http://www.ehbasel13.org

16th IUAPPA World Clean Air Congress
29 September - 4 October, Cape Town, South Africa, http://www.iuappa.org

IAQ 2013 - Environmental Health in Low Energy Buildings
15-18 October, Vancouver, British Columbia, Canada,
http://www.ashrae.org/membership--conferences/conferences/ashrae-conferences/iaq-2013