

NEWSLETTER



WHO COLLABORATING CENTRE FOR AIR QUALITY
MANAGEMENT AND AIR POLLUTION CONTROL



at the

FEDERAL ENVIRONMENT AGENCY
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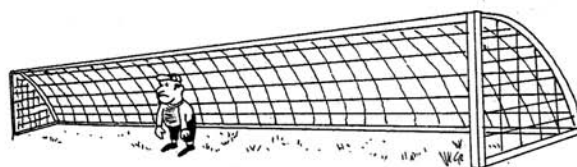
CLOSING THE GAP !

FIFA WORLD CUP 2006 / AIR POLLUTION

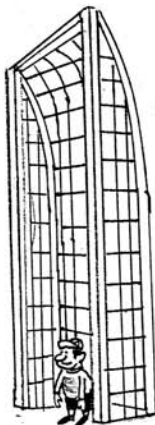
Due to the focus on fractions of particulate Matter ("PM") of extremely small size (PM10, PM5, PM2.5 etc.), only limited knowledge exists regarding detrimental health effects of larger airborne particles. To close this GAP - (Warning: do not confuse with "CAP", see cover of "Newsletter" No. 36!) - research has been initiated on the relevance of the so called "MAXIFRACTION" (i. e. PM 100,000 to ∞)!

At the moment pretrials are being conducted with various "collectors" (i.e., "nets") for "middle-sized particles of the Maxi-Fraction" (see figures)

Each collector is equipped with 1 "Impactor" (of standard size between 1750 and 2000 mm)



WIDE-ANGLE PM-SAMPLER
(NET FORM) WITH IMPACTOR



HIGH VOLUME PM-SAMPLER
(NET FORM) WITH IMPACTOR



Mike

1986 - 2006
20 YEARS OF COLLABORATION WITH THE WORLD HEALTH ORGANIZATION IN THE FIELD OF AIR HYGIENE

Bernd Seifert and Hans-Guido Mücke

In 2006 the German Federal Environment Agency (UBA) is looking back at 20 years of successful co-operation with the World Health Organization. In fact, it was in 1986 that the European Regional Office of WHO in Copenhagen, in recognition of the long lasting scientific and research expertise on health impact assessment of air pollution of the Institute for Water, Soil and Air Hygiene (WaBoLu) of the German Federal Health Office (BGA), signed an agreement with this Institute to establish a WHO Collaborating Centre for Air Quality Management and Air Pollution Control (WHO CC). The excellent co-operation which resulted from this agreement was continued when WaBoLu and its WHO CC became part of the Federal Environment Agency (UBA) in 1994. Over the last two decades, the WHO CC which is currently associated with UBA's Department of Environmental Hygiene has developed and pursued a large number of activities to fulfil the needs of both WHO and the Member Countries of WHO's European Region, serving as a 'switch board' for the exchange of information with and between National Focal Points, WHO EURO and WHO Headquarters in Geneva.

The main aim of the work is to assist WHO and give support to the 52 European Member States in matters concerning ambient and indoor air hygiene. In particular, WHO CC provides advice and helps undertake studies, reviews and assesses latest research findings, prepares and publishes reports on important topics and a bulletin, and organises trainings and workshops.

Since 1987, the WHO CC publishes a biannual 'Newsletter' with feature articles and information on published literature and upcoming events. In 1990 the series 'Air Hygiene Report' was established. The

volumes of this series each focus on specific topics. Up to now 15 reports have been published on the results of environmental epidemiological studies, biological monitoring approaches, and air quality monitoring and management aspects. Since 2000 the WHO CC provides continuously updated information electronically at <http://www.umweltbundesamt.de/whocc/titel/titel21.htm>.

Within the last two decades extensive scientific advice has been given by a number of WHO CC experts who participated in various important WHO EURO activities. For example, experts of the WHO CC were very actively involved when WHO/EURO started a series of workshops on indoor air quality as early as in 1979. Important contributions were also made to the revision and update of the 'Air Quality Guidelines for Europe' (second edition, 2000), the preparation of a guidance document for 'Monitoring Ambient Air Quality for Health Impact Assessment' (1999), and the reports 'Assessment of Exposure to Indoor Air Pollutants' (1997), the development of 'Strategic Approaches to Indoor Air Policy-Making' (1999), and the 'Evaluation and Use of Epidemiological Evidence for Environmental Health Risk Assessment' (2000). Another recent example of an outstanding contribution was the nomination of one WHO CC expert as member of the Scientific Advisory Committee within the programme 'Systematic Review of Health Aspects of Air Pollution in Europe' (2004).

Due to extensive laboratory experience available at the Department of Environmental Hygiene particular input could be given to the development and understanding of measurement techniques and strategies for particulate matter (PM) methods and

techniques. Our experts contributed to a series 1997 and 2004. The results of these workshops were published in various WHO EURO documents.

Due to its involvement in coordination the WHO CC served as active partner in the EU project 'Air Pollution and Health: A European Information System/APHEIS' between 1999 and 2004.

To contribute to the international process of harmonising air quality measurements the quality assurance and control programme 'European Intercomparisons on Air Quality Monitoring' has been established. Within this programme practical training work is organised for the Member Countries. Between 1994 and 2006, together with the German national reference laboratory thirteen Intercomparison Workshops have been conducted. The results are published in the above mentioned WHO CC series 'Air Hygiene Report'.

As a result of the support given to WHO, the WHO CC is also actively involved in supra-national co-operation of WHO with UNEP and UNECE. As an example, within the WHO/UNEP/GEMS Air programme, several meetings had been organised between 1987 and 1996. Also, WHO CC provides continuous input to the Working Group on Effects/Task Force on Health of the UNECE Convention on Long-range Transboundary Air Pollution, which is run under the responsibility of WHO EURO.

The WHO CC is especially eager to provide assistance to the countries in the Central and Eastern part of the European Region. Since the creation by WHO EURO of a programme on 'Air Quality and Health', consultative meetings have been co-organized and held in

of workshops on PM₁₀ and PM_{2.5} between Tashkent (1999), St. Petersburg (2003) and Moscow (2005).

To realise the various WHO CC workshops, particularly by giving experts from Eastern Europe, Caucasus and Central Asia (EECCA) the opportunity to take part, financial support of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety is gratefully acknowledged.

All this work would not have been possible without the dedicated help from the staff of the Department of Environmental Hygiene, many individuals within the Federal Environment Agency, and the colleagues at the various levels within WHO. In particular, we are very pleased to acknowledge the excellent co-operation with our colleagues of the WHO European Centre for Environment and Health (WHO ECEH), which had been located in Bilthoven, The Netherlands, from 1991 to 2000, and since then has come even closer to us, being now based in Bonn. It is our great pleasure to participate actively in the WHO ECEH's – and consequently WHO EURO's – various work programmes related to Environment and Health, , in particular to those in the areas 'Air Quality', 'Environment and Health Information Systems', and 'Housing and Health'. We are looking forward to many more years of fruitful collaboration.

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ENVIRONMENT AND HEALTH INFORMATION SYSTEMS IN EUROPE AND WHO COLLABORATIVE PROJECTS

Dafina Dalbokova on behalf of ENHIS group *

The need for an Environment and Health Information System (EHIS)

Reliable information is essential for prioritising actions aiming at reducing environmental health risks as well as for monitoring their effectiveness in terms of public health benefits.

Within the environment and health process in Europe, the establishment of a well-coordinated mechanism for health-environment monitoring and reporting has increasingly become a priority of its own. At the Fourth Ministerial Conference on Environment and Health (Budapest, 2004) [1] the Member States committed themselves to joining actions with WHO, the European Commission and other international organizations on building information support to policy development including the Children's Environment and Health Action Plan for Europe (CEHAPE) [2] adopted by the Conference.

The Establishment of a pan-European Environment and Health Information System (EHIS) is of direct relevance to the European Union Action Plan on Environment and Health (the SCALE process) and puts a special emphasis on children's environment and health and its key action focus on improving the information chain.

WHO collaborative projects on EHIS

Creating a sustainable health information and knowledge system is a key priority of the European Community Public Health Programme. To this end, WHO in collaboration with EC DG Sanco and partner institutions in the member countries has been implementing projects to lay down the

foundations of a comprehensive Environment and Health Information System. The 'ECOEHIS – Development of environment and health indicators for European Union countries' project (2002-2004) [3] has proposed a set of 'core' indicators to address major environmental health risks as an integral part of the EC health information system.

The 'ENHIS – Implementing Environment and Health Information System in Europe' project implemented in 2004-2005 [4], further advances the indicator work towards the establishment of a solid methodological and organizational basis for the system operation. This methodology is currently being applied in the follow-up ENHIS-2 project which runs from November 2005 until October 2007 and is implemented by a greater number of countries covered by the EC Public Health Programme.

Implementing environment and health information system in Europe: ENHIS project

The project has been implemented in collaboration with partner institutions from Austria, Czech Republic, Finland, France, Germany (North-Rhine Westphalia), Hungary, Netherlands, Poland, Romania, Spain, UK and coordinated by WHO European Centre for Environment and Health, Bonn.

The project has developed the main methods and practical guidance enabling analysis and reporting on European environmental health situation and relevant policies along the two main information streams: indicators and health impact assessments.

In particular:

- A set of ‘core’ indicators has been updated to provide countries with the appropriate information allowing comparisons to be made with the children’s health and the environment information in the focus. Methodology was developed to integrate existing data based on the scientific knowledge of the linkages between health and environmental risks. ENHIS has prepared guidelines for information generation, analysis and reporting. IT tools enhancing retrieval of the environmental and health data flows and re-use of existing information are under way.
- Methods for health impact assessment (HIA) have been selected and applied to quantify impacts of outdoor air pollution in European cities. The feasibility for performing HIA to drinking water pollution was evaluated and the gaps in scientific knowledge as well as limitations in methods and data availability – identified.

- The health benefits from reducing exposure to outdoor air pollution in children and general population have been quantified to support with reliable information policies and regulations.

How these main information streams can be put in operation to provide timely, targeted and reliable information support of the entire policy process? It means providing the health ‘argument’ in planning and setting priorities for actions, monitoring the progress in the health-environment situation and evaluating the effectiveness of the measures taken on population exposures and health.

Environmental and Health Information System

Figure 1 illustrates schematically the information system operation according to the following main blocks. ‘Routine’ system operation comprises converting data and statistics in information using the defined indicators and assessments e.g. trends in time and space and HIA key findings.

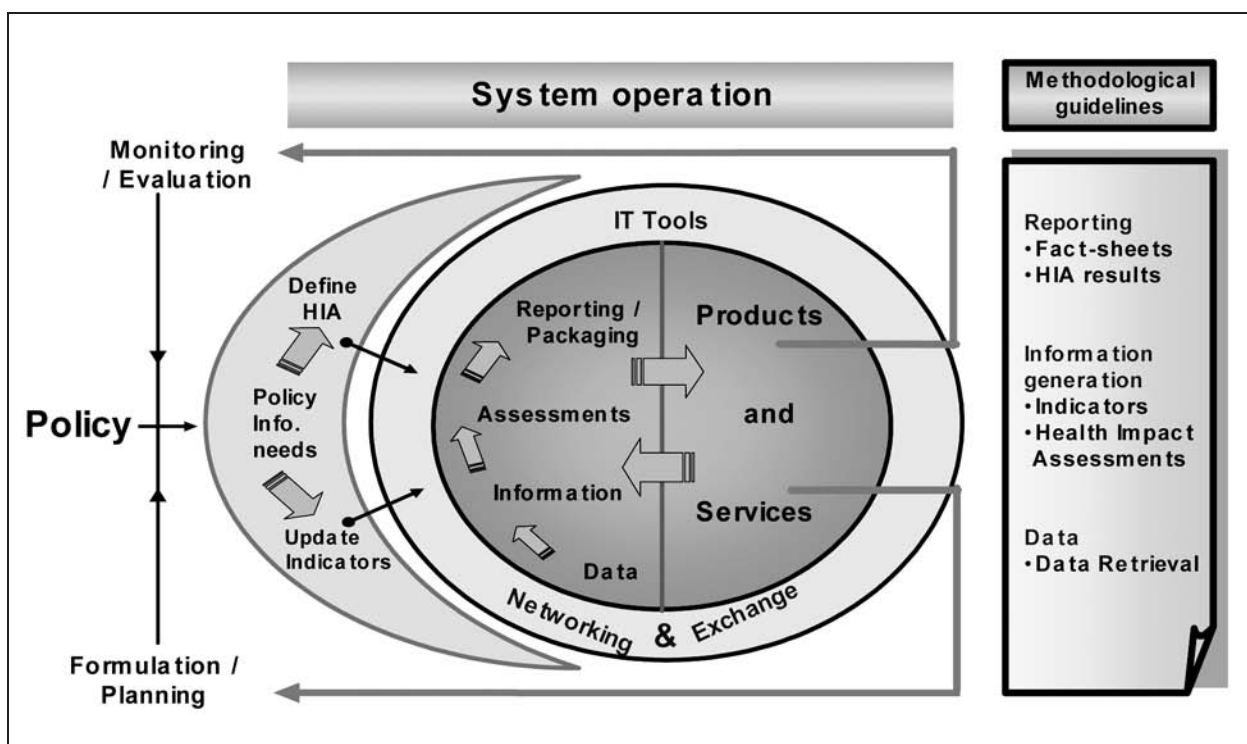


Figure 1: Environment and Health Information System in Europe and WHO collaborative projects

These assessments are supported with interpretation in the context of relevant policies as well as the state-of-the-art scientific knowledge about the environmental health risks and burden of ill-health associated to them. This information and knowledge is then ‘packaged’ and reported targeting different user groups to feed in the policy process. Operation of the system maintaining its relevance for the Member States relies on the network of collaborating centres.

To underpin users’ changing needs, future policies, emerging environmental health issues and public concerns the system should be flexible. The scope of the information and monitoring system therefore should be adjusted and the core information ‘streams’ i.e. the EH indicators and HIA - updated based on the policy information needs according to the state-of-the-art scientific knowledge. Identifying information needs of policies and regulations in terms of health effects requires regular review and analysis.

The ENHIS project is being organized in six work packages, the tasks of which are embedded in the abovementioned system operation requirements. The departing point for the ‘routine’ system operation has been the core set of 17 EH indicators proposed by the ECOEHIS project. The 17 indicators were crosschecked vis-à-vis the EC legislation [5].

The set of methodological guidelines prepared by the project support countries in building and upgrading existing environment and health information systems according to harmonized practices and increasing data exchange and comparability.

Highlights of the ENHIS project

The ECOEHIS proposed indicators have been updated to include children’s environmental health ones, designed to serve the four regional priority areas of the CEHAPE. These indicators encompass key children’s environmental health risks and preventive

interventions related to safe water and sanitation, injuries and adequate physical activity, clean outdoor and indoor air, and hazardous chemicals.

Thirty indicators were selected as best candidate for the core set based on their policy relevance, scientific knowledge and feasibility, and are currently applied in participating Member States. Together with the methodology, practical guidelines for information retrieval from existing international and national databases facilitate indicator generation and streamlining of data reporting.

The ENHIS project has conducted dedicated work to identify, evaluate and select methods for health impact assessment of outdoor air pollution considering particulate matter (PM₁₀) and ozone O₃. HIA has been performed in 31 European cities and the ill-health events in children and general population that could be prevented by reduction in outdoor air PM₁₀ and O₃ levels – quantified.

For PM₁₀ both short-term and long-term exposures were considered. The PM₁₀ daily exposure was calculated as the arithmetic mean of the daily concentrations at the local automatic monitoring stations. As for ozone the maximum daily 8-hour mean in summer and the daily 1-hour maximum round-the-year were used.

Urban air pollution impacts on children’s health have been assessed. In particular, quantified were the effects of PM₁₀ on post neonatal mortality (total and respiratory mortality and Sudden Infant Death Syndrome), on hospital respiratory admissions (0-14 years), on cough and lower respiratory symptoms (5-17 years), and those of ozone - on emergency room visits for asthma (<18 years).

In general population the health impacts of ozone exposure has been estimated for premature mortality (total, respiratory and cardiovascular mortality), and those to PM₁₀ -

on hospital respiratory admissions for two age-groups of 15-64 years and >65 years.

HIAs have been performed for different scenarios. For PM₁₀ reduction three different scenarios have been used. Two of them were as follows: a reduction to a 40 µg/m³ and to a 20 µg/m³ for PM₁₀ long-term exposure, and for the daily PM₁₀ – a reduction to a 50 µg/m³ and to a 20 µg/m³. These scenarios were selected based on the European Council Directive 1999/30/EC, which sets two target limit values for the annual PM₁₀ compliance of 40 µg/m³ (1 January 2005) and 20 µg/m³ (1 January 2010) and a 24-hour limit value of 50 µg/m³ not to be exceeded more than 35 times per year (1 January 2005) and no more than seven times (1 January 2010). The third scenario was for a PM₁₀ absolute reduction by a 5 µg/m³.

For ozone scenarios, the third Daughter Directive 2002/3/EC sets the target value, long-term objectives, an information and an alert threshold for ambient air ozone concentration. The scenarios selected were as follows: a reduction of the maximum daily 8-hour mean in summer to a 120 µg/m³, and to a 180 µg/m³ –for the daily 1-hour maximum round-the-year. The third scenario was for an absolute ozone levels reduction by a 10 µg/m³.

These health impact assessments reveal that air pollution continues to pose a significant threat to public health in urban areas in Europe. They add more evidence to the findings from other studies in Europe [6] and highlight potential benefits of children's health from reducing exposures. Linking policy reduction scenarios for PM₁₀ and ozone to a range of health impacts demonstrates that incentives to reduce PM₁₀ levels in the short and medium terms are needed to help reduce air-pollution levels further. The findings show that exposure reduction for comparable health outcomes results in the greatest benefits for children.

A coordinated initiative by European legislators and national and local policy-

makers could help achieve this goal. Coupling the health impact assessment with the indicator for long-term PM₁₀ exposure based on the data reported under the Council Decision (1997) on exchange of ambient air pollution information will enable an empowered health-relevant environmental monitoring. Furthermore, it will provide a stronger input to the current regulatory debate and to an improved accountability of environmental policies in terms of health benefits.

The main limitation to obtain a more complete picture on the health impacts of outdoor air pollution in Europe has been the availability of morbidity data sources. It remains therefore a priority to produce more-uniform hospital-admissions statistics in Europe and also to increase the availability on a routine basis of morbidity indicators on asthma attacks and respiratory symptoms.

Conclusions

The project has prepared a set of products such as health impact assessment reports also at local city level, a collection of fact-sheets and a pilot project web-site https://webcollect.rivm.nl/ENHIS_pilot.

These highlight the methodological developments providing an illustration to potential users and stakeholders of the future system operation for information generation and reporting.

Beyond the methodological developments, a network of collaborating partners in the Member States has laid the foundations for an operational mechanism for monitoring and reporting.

Next Step

The integration of HIA in preparation of policy analysis will be further reinforced, which should involve selection of scenarios with a clear ground to the actual policies. Integrating the HIA results in the policy-

oriented analysis and reporting would further increase the usefulness allowing Member States to focus their regulatory measures on priority areas most relevant to health.

All these achievements are further taken up by the ENHIS-2 project. In particular, the network in the Member States has been expanded and environment and health information capacities - further strengthened. An inventory of relevant policies will be created and information requirements for an effective support to CEHAPE - defined. Preparation of the assessment report of the environmental health situation resulting from the policy actions across the entire WHO European Region has begun. The 'Children's health and the environment in Europe: first assessment' report uses the ENHIS methodological advances demonstrating that the EHIS starts becoming operational.

Recently the project report has been published at:

http://europa.eu.int/comm/health/ph_projects/2003/action1/action1_2003_28_en.htm

References

1. Fourth Ministerial Conference on Environment and Health (Budapest, 23-25 June 2004) Declaration at <http://www.euro.who.int/document/e83335.pdf>
2. Children's Environment and Health Action Plan for Europe (CEHAPE) at <http://www.euro.who.int/document/e83338.pdf>
3. WHO European Centre for Environment and Health. Development of Environment and Health Indicators for European Union countries: ECOEHIS at http://www.euro.who.int/EHindicators/Methodology/20030527_5
4. Implementing Environment and Health Information System in Europe – the ENHIS projects at http://www.euro.who.int/EHindicators/Methodology/20050419_2

4a Implementing environment and health information system in Europe – ENHIS (2004-2005) at http://www.euro.who.int/EHindicators/Methodology/20060126_1 final technical report (will be available very soon under ENHIS final reports)

4b) Establishment of environment and health information system supporting policy-making in Europe – ENHIS-2 project (2005-2007) general description at http://www.euro.who.int/EHindicators/Methodology/20060201_1

5. WHO European Centre for Environment and Health. Development of Environment and Health Indicators for European Union countries: Results of a Pilot Study. Bonn: WHO ECEH Bonn Office; 2004 7-9 July 2004. Report No.: EUR/04/504633 <http://www.euro.who.int/document/e85061.pdf>

6. APHEIS Network at <http://www.apheis.net>

ENHIS group: A. Galan (IPHB, Romania), M. Jantunen (KTL, Finland), D. Jarosinska (EEA), M. Krzyzanowski and R. Kim (WHO-ECEH), S. Medina (InVS, France), A. Paldy (NIEH, Hungary), B. Staatsen (RIVM, The Netherlands).

Acknowledgements: All ENHIS partners (complete list is in the ENHIS final technical report; EC DG Sanco Grant Agreements SPC 2002300, SPC 2003112 and SPC 2004124.

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NOTES AND NEWS

Overview on the International Programme on Chemical Safety (IPCS)

Within the Inter-Organization programme for the sound Management of Chemicals (IOMC), which is a co-operative agreement among UNEP, ILO, FAO, WHO, UNIDO, UNITAR and OECD, the UNEP/ILO/WHO

International Programme on Chemical Safety (IPCS - <http://www.who.int/ipcs/en/>) is established, which provides various assessment publications:

- Concise International Chemical Assessment Documents: <http://www.who.int/ipcs/publications/cicad/en/index.html>
- Environmental Health Criteria: <http://www.who.int/ipcs/publications/ehc/en/index.html>
- Health and Safety Guides: <http://www.who.int/ipcs/publications/ehc/en/index.html>
- International Safety Cards: <http://www.who.int/ipcs/publications/icsc/en/index.html>
- Pesticide Safety Data Sheets: <http://www.who.int/ipcs/publications/pds/en/index.html>
- The WHO Recommended Classification of Pesticides by Hazard: http://www.who.int/ipcs/publications/pesticides_hazard/en/index.html.

Further IPCS-related activities are:

- Endocrine Disruptors: http://www.who.int/ipcs/publications/endocrine_disruptors/endocrine_disruptors/en/index.html
- Aircraft Desinsection: http://whqlibdoc.who.int/hq/1995/WHO_PCS_95.51_Rev.pdf
- Dioxin TEF Review: http://www.who.int/ipcs/assessment/tef_update/en/index.html
- Rapid Assays for Dioxins: <http://www.who.int/ipcs/assessment/dioxins/en/index.html>
- Review of selected POPs: http://www.who.int/ipcs/assessment/en/pcs_95_39_2004_05_13.pdf

WHO HEPA Europe Work Programme 2005/06

The European network for the promotion of health-enhancing physical activity (HEPA Europe) was launched in May 2005 as a new international, collaborative initiative assisted by WHO/Europe:

Health-enhancing physical activity (HEPA) is any form of physical activity that benefits health and functional capacity without undue harm or risk. The overall vision of this initiative is to achieve better health through physical activity among all people in Europe. At the first annual meeting of the Network in Gerlev, Denmark, in May 2005, a number of

activities were outlined to be carried out by the Network in the following year. Additional activities were launched at the following Steering Committee meeting. This work programme covers the period of October 2005 to June 2006. At the next annual network meeting in 2006, progress on ongoing activities will be reviewed and the next annual work programme will be defined. For more information, see:

<http://www.euro.who.int/eprise/main/WHO/Progs/hepan>

PEOPLE: Population Exposure to Air Pollutants in Europe

The PEOPLE project has been assessing outdoor, indoor and personal exposure levels of air pollutants in European cities, focusing on emissions from transport and smoking. Benzene was selected as a first pollutant to be measured, considering it is carcinogenic, being associated with the risk of the development of leukaemia. In cities, benzene is mainly generated by automotive traffic. It is present in gasoline and is also formed as by product of the incomplete combustion of gasoline. Benzene is also a good marker for other pollutants generated by traffic, such as carbon monoxide, nitrogen oxides and volatile organic compounds. Smoking is also an important source of benzene strongly affecting personal exposure to this pollutant. However, benzene is one of many toxic compounds emitted by smoking, such as nicotine, tar and fine particles. Brussels, Lisbon, Ljubljana, Bucharest, Madrid and Dublin have participated in the project. In each city, diffusive samplers are used to monitor personal exposure and environmental pollution levels of benzene. Each citizen selected to participate is provided with a simple measurement device, and requested to expose the sampler to ambient air for 12 hours on their body during a well-specified day of the working week. These measurements are possible thanks to the use of a new diffusive sampler that can be used over short periods of time. The PEOPLE project has been extended to include outdoor and indoor measurements of other pollutants of relevance to long term exposure, in particular particulate matter, including

polycyclic aromatic hydrocarbons such as benzo(a)pyrene. The PEOPLE project has two main avenues of research associated with its assessment of population exposure to air pollutants. The first one is concerned with personal exposure to air pollution. Citizens are selected to represent differing groups of transport, for example those that travel using personal car, or those that travel using public transport, or those that travel on foot or by bike. A small group of about thirty citizens represents each commuting group. The results from these groups are then compared to both a control group that consists of people who work or stay at home and a smoking group of people. The second one is concerned with monitoring of city environments. This is achieved by producing a contour map of the background city wide pollution levels as well as by monitoring at places we inhabit (e.g. domestic indoor) or visit (e.g. shops). Comparison of data from the two avenues of research helps define if personal exposure is significantly different from environmental data, in particular that used to define compliance with air quality directives. To enable this comparison, each volunteer had to complete a Micro Environment Activity Diary, which indicates both the locations that a persons visits during their working day but also transport modes used to get to and from work. More information can be found at <http://ies.jrc.cec.eu.int/Units/eh/Projects/PEOPLE/>.

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In conclusion, the aims of the PEOPLE project are:

- to provide an assessment of benzene levels for the establishment of measurement regimes and in support to monitoring network design, mainly in the new EU Member/Candidate Countries;*
- to evaluate the impact of outdoor and indoor emission sources (including smoking) on human exposure to benzene levels, in support to risk assessment of urban populations in Europe and the validation of exposure models;*
- to assess population exposure in various European capitals to identify similarities and differences related to local mobility policies and air pollution abatement measures;*
- to support local, national and European decision making, and to raise the awareness of citizens with regard to air quality in general, and in particular to the impact of personal behaviour (mode of living, mode of transport, smoking habit). This last aspect constitutes a key element in the PEOPLE study approach, being nestled into the Clean Air For Europe (CAFE) Programme of the European Commission.*

20 Years of cartoons by Michael Wagner



MEETINGS AND CONFERENCES

Institutional Conditions for Integrated Transport, Environment and Health Policies

THE PEP Workshop, 23–24 January 2006 in Berlin, Germany

The Berlin workshop was organised as part of a project on "Supportive institutional mechanisms for integrated policy and decision-making on transport, environment and health", which is carried out within the Transport, Health and Environment Pan-European Programme (THE PEP), a programme jointly administered by UNECE and WHO/Europe.

THE PEP provides a framework for cooperation to representatives from the three sectors in 55 countries with the aim to promote sustainable transport goals across the pan-European region. Special emphasis is given to the EECCA and the South-East Europe countries.

The integration of environment and health concerns into transport policy is crucial for sustainable development and constitutes one of the priorities for THE PEP. It is, however, a challenging task to put into practise because of factors such as conflicting interests and priorities between policy-makers in different sectors.

The workshop was organised by the Federal Environment Agency, Germany, in co-operation with the European Academy for Urban Environment, Berlin, the THE PEP secretariat and the Technical University of Delft. It aimed to contribute to understanding about policy-making processes that integrate transport, environment and health issues more effectively, with a special focus on institutional arrangements. It served to deepen and complete the information on current institutional practise in the region building on the relevant studies and publications available as well as on the replies to an on-line questionnaire survey. 63 participants from 22 countries, mostly from new EU member states, the EECCA region and South-East Europe, attended the workshop.

They discussed

- institutional arrangements promoting policy integration
- barriers and bottlenecks to policy integration
- learning from each other: supportive institutional arrangements for policy integration
- the way forward - dissemination, information and training

and gave first ideas to tackle the problems. The discussion was enriched by presentations of practical examples of cities all over the region.

It can be concluded that besides a lot of single successful approaches still a lot of barriers and bottlenecks for integration exist. Due to different cultures, values and administrative rules positive examples cannot only be transferred to another country but need an adaptation to the specific conditions. In addition, the human factor influences strongly the creation and use of structures for integrated work and has therefore been considered comprehensively. The workshop documentation with all presentations and the results of the small group discussions can be found in the web (<http://www.eaue.de/Programme/THEPEP.htm>).

The findings will be integrated into further work of the project and presented at the third High Level Meeting of THE PEP in 2007 (<http://www.thepep.org/>).

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PUBLICATIONS

WHO

**The World Health Report 2006:
Working together for health**

WHO Publications, Geneva 2006, copies could be obtained from bookorders@who.int. This report is also available through the web: http://www.who.int/whr/2006/whr06_en.pdf.

The World Health Report 2006 contains an expert assessment of the current crisis in the global health workforce and ambitious proposals to tackle it over the next ten years, starting immediately. The report reveals an estimated shortage of almost 4.3 million doctors, midwives, nurses and support workers worldwide. The shortage is most severe in the poorest countries, especially in sub-Saharan Africa, where health workers are most needed. Focusing on all stages of the health workers' career lifespan from entry to health training, to job recruitment through to retirement, the report lays out a ten-year action plan in which countries can build their health workforces, with the support of global partners.

Ecosystems and Human Well-Being – A Report of the Millennium Ecosystem Assessment

Corvalan, C. et al., WHO Publications, Geneva 2005. 65 pages, ISBN 92-4-156309-5, CHF 16.70, in developing countries CHF 11.70, www.who.int/bookorders.

This report synthesizes the findings from the Millennium Ecosystem Assessment (MA) global and sub-global assessments of how ecosystem changes do, or could, affect human health and well-being.

Over the past 50 years humans have changed natural ecosystems more rapidly and extensively than during any comparable period in human history. The findings provide the strongest evidence so far of the ways in which pressures on ecosystems have resulted in the loss of vital ecosystem services, which purify and replenish water, soil and air resources essential to health, and also keep many diseases in check. Loss of these ecosystem services, in turn, affect patterns of communicable and non-communicable disease distribution and transmission. In the future, still-increasing pressures on ecosystems could impact public health in a variety of ways that are unpredictable and potentially severe.

Human exploitation of ecosystem services has, indeed, contributed to substantial net gains in well-being and development across much of the planet. Still, not all regions and groups of people have benefited from this process, and many have been harmed. Moreover, the

full costs associated with these gains are only now becoming apparent. Approximately 60% of the ecosystem services examined, from regulation of air quality to purification of water, are being degraded or used unsustainably.

The Millennium Ecosystem Assessment has worked to assess the consequences of ecosystem change for human well-being, and establish the scientific basis for actions needed to enhance the conservation and sustainable use of those systems, so that they can continue to supply the services that underpin all aspects of human life. The assessment exercise has involved more than 1,300 experts worldwide, and started in 2001.

WHO Air Quality Guidelines – Global Update 2005

Report on a working group meeting, Bonn, Germany, 18-20 October 2005, WHO Europe Publications 2005, Copenhagen, Denmark. This report is also available through the web: <http://www.who.dk/Document/E87950.pdf>.

Since the most recent update of the WHO AQG, completed in 1997, many new studies have investigated the effects of air pollution on human health. Focusing on the most common pollutants (particulate matter (PM), ozone and nitrogen dioxide), WHO/Europe reviewed this new evidence within the project "Systematic review of health aspects of air quality in Europe", concluding that:

- the new evidence warrants an update of the WHO AQG on PM and ozone
- the evidence to reconsider the current AQG for nitrogen dioxide was not sufficient, although the justification for the current guidelines may be revised.

WHO guidelines should be applicable to all people, living in all regions, and support air quality policies and management strategies in various parts of the world. A global consultation on the conclusions emerging from the scientific evidence was needed to generalize the results of the systematic review carried out focusing on the WHO European Region to the other regions. A small steering group of experts guided the update, completed by the end of 2005. It assessed issues specific to developing countries and situations prevalent also outside the European Region, and formulated and adopted updated WHO AQG for PM and ozone.

OTHERS

Air Pollution at Street Level in European Cities, Technical Report No 1/2006

European Environment Agency, Copenhagen 2006, 52 Pages, ISSN 1725-2237, also available through the web: http://reports.eea.eu.int/technical_report_2006_1/en/technical_1_2006.pdf.

Traffic-related air pollution is still one of the most pressing problems in urban areas. Evidence of the adverse health effects of fine particulate matter is continuously emerging and it is alarming that most of the traffic-related emissions are in the fine particulates range (PM_{2.5}). Human exposure to increased pollutant concentrations in densely populated urban areas is high. The improvement of air quality is therefore imperative. Air quality limit values, which are aimed at protecting public health, are frequently exceeded especially in streets and other urban hotspots.

Costs of Air Pollution Control – Analysis of Emission Control Options for Ozone Abatement Strategies

S. Reis, University of Stuttgart, Germany 2005. 203 pages, ISBN 3-540-43934-X, € 79.95, www.springer.com.

This book describes the development of cost effective cost abatement strategies aimed at controlling air pollutant emissions in Europe, particularly ground level ozone. The author gives a thorough evaluation of the results achieved for different environmental targets, and proposes a modelling scheme for emission targets required to achieve compliance with EU thresholds. Calculations reveal the need to review established ozone thresholds and emission limits.

Biotechnology for Odor and Air Pollution Control

Z. Shareefdeen et al., Guelph, ON, Canada 2005. 409 pages, ISBN 3-540-23312-1, € 149,95, www.springer.com.

This is the first reference book on biotechnological processes for odor and air pollution control of both nuisance and hazardous side effects of many industries. Topics include bioprocesses for the treatment of odor and air pollutants in wastewater treatment plants, rendering plants, chemical production facilities, and food and flavor manufacturing facilities. Beyond the basics of microbiological and engineering, the design, modelling and control of bioreactors are also discussed.

Environmental Health Monitoring System in the Czech Republic – Summary Report 2004

M. Lustigová, V. Puklová (eds.), National Institute of Public Health, Prague 2005, 136 pages, ISBN 80-7071-256-2, also available through the web: www.szu.cz/chzpa/sumrep.htm.

Environment and Health, EEA Report No 10/2005

European Environment Agency and Joint Research Centre of the European Commission, Copenhagen 2005, 35 pages, ISBN 92-9167-7817, Catalogue No: TH AL 05 010 EN C, € 15,-, also available through the web: http://reports.eea.eu.int/eea_report_2005_10/en/EEA_report_10_2005.pdf.

Public concerns, evidence from research and increasing scientific knowledge are all driving widespread discussions on environment and health problems. The issue of environment and health is characterised by multi-causality with different strengths of association. This means that the links between exposures and their health consequences depend on the environmental pollutants and diseases being considered, but are also influenced by factors such as genetic constitution, age, nutrition and lifestyle, and socioeconomic factors such as poverty and level of education.

Handbook of Urban Health - Populations, Methods, and Practice

Galea, S., Vlahov, D. (Eds.), Springer 2005, 599 pages, ISBN 0-387-23994-4, € 80,20, www.springer.com.

As more people worldwide live in cities, increasingly we need to understand how cities and city living affect population health. Does city living negatively affect health? Conversely, can city living enhance population health and well-being? Over forty experts from around the world bring a depth of ideas to the Handbook of Urban Health, making the Handbook a focused resource for a range of health disciplines.

A unique professional idea book, research resource, and teaching text, the Handbook of Urban Health challenges readers to consider the role that cities play in shaping population health and to generate solutions that can make cities healthier places for all those who live there.

COMING EVENTS

2006

July 2006

Urban Transport 2006 – 12th International Conference on Urban Transport and the Environment in the 21st Century

12-14 July, Prague, Czech Republic.

For more information, see:

www.wessex.ac.uk/conferences/2006/urban06/1.html.

Indoor Environmental Quality – Problems, Research, and Solutions

17-19 July, Research Triangle Park, North Carolina, USA.

For more information, see: www.awma.org/events.

September 2006

Joint ISEE/ISEA Int. Conference on Environmental Epidemiology & Exposure

2-6 September, Paris, France. Theme: Science, Population Diversity, Caution and Precaution.

For more information, see: www.paris2006.afsse.fr.

15th IUAPPA Regional Conference

5-8 September, Paris and Lille, France.

For more information, see: www.iuappa-lille2006.org.

International Aerosol Conference 2006

10-15 September, St. Paul, Minnesota, USA

For more information, see:

www.aaar.org/IAC06/index.htm.

October 2006

Healthy Cities in the Globalizing World

28-30 October, Suzhou, China.

Second General Assembly and Conference of the Alliance for Healthy Cities (AFHC). For more information, see: www.afhc-2006.org.

November 2006

Respirations 2006 / Oxygen Awards

11-12 November, Enghien Les Bains (15 km from Paris), France. The conference will begin with the Oxygen Awards on 10 November. For more information, see: www.respirationsdenghien.com.

14th EUPHA Conference: Politics, Policies and /or the Public's Health

16-18 November, Montreux, Switzerland.

For more information, see:

<http://www.eupha.org/index.html>.

EPIC 2006 AIVC Conference

29 November-1 December, Lyon, France.

Fourth European Conference on Energy Performance & Indoor Climate in Buildings, 27th Conference of the AIVC. For more information, see: <http://epic.entpe.org>.

2007

April 2007

Air Pollution 2007

23-25 April, Algarve, Portugal.

For more information, see: www.wessex.ac.uk.

September 2007

Urban Transport 2007 – 13th International Conference on Urban Transport and the Environment in the 21st Century

3-5 September, Coimbra, Portugal.

For more information, see: www.wessex.ac.uk.

19th Conference of the International Society for Environmental Epidemiology (ISEE)

6-9 September, Mexico City, Mexico. For more information, see: www.iseepi.org/conferences.html.

14th World Clean Air and Environmental Protection Congress (IUAPPA)

9-13 September, Brisbane, Australia. For more information, see: www.icms.com.au/iuappa2007.

October 2007

IAQVEC 2007 - Sixth International Conference on Indoor Air Quality, Ventilation and Energy Conservation in Buildings

28-31 October, Sendai, Japan.

For more information, see:

www.archi.tohoku.ac.jp/labs-pages/kankyo/IAQVEC/IAQVEC_e.html.

NEWSLETTER

EDITORS' NOTE

We appreciate submissions to NOTES AND NEWS regarding programmes and projects within the field. Notes (100-500 words) should be sent directly to the WHO Collaborating Centre for Air Quality Management and Air Pollution Control.

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