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CONTENTS

Re: "6th International Conference on Urban Air Quality" in **CYPRUS**, 27–29 March 2007

ASSESSMENT OF AIR QUALITY IN CYPRUS

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Introduction

Cyprus is known as the "Island of Love", the birthplace of Aphrodite, the Olympus goddess of love and beauty, borne out of the waves of the sea. Cyprus is the third-largest Mediterranean island after Sicily and Sardinia with an extension of 250 km from west to east and 80 km from north to south. It lies as the most easterly Mediterranean island 75 kilometres south of Turkey and 105 kilometres west of Syria. Cyprus is a wonderful compact tourism destination, an island nation rich in history, with a human presence since the Stone Age and its archaeology revealing the influence of Phoenicia, Greece, Rome, Byzantium, Egypt and Persia. The current problem of Cyprus is that since 1974 it has been divided into the Greek and Turkish Cypriot Communities. In 2004 the Greek Cypriot Community, the officially recognised Republic of Cyprus, became EU member. Since 2004 Cyprus belongs to the WHO European Region, too. Since 1974 the United Nations are present in Cyprus controlling the “Buffer Zone” and enhancing common projects with the target to bring people of both sides together. Thus, a project with the title **Preliminary Assessment of Ambient Air Quality in Cyprus** had been supported by the US Agency for International Development (USAID) and the United Nations Development Programme (UNDP) under coordination of the United Nations Office for Project Services (UNOPS). The project was carried out by the Institute of Process Engineering and Power Plant Technology, Department of Air Quality Control, of the University Stuttgart/Germany in co-operation with the Greek Cypriot Community and the Turkish Cypriot Community. The project report contains the results and recommendations for the implementing agencies to decide on the network to be established for the systematic monitoring of air quality in accordance to the relevant EU Directives. Most parts of the report can be downloaded from the homepage of the Cypriot Department of Labour Inspection (DLI), Ministry of Labour and Social Insurance, which is responsible for air quality control and air quality monitoring in Cyprus: www.airquality.dli.mlsi.gov.cy.

The project was carried out in 2002 – 2003. But the air quality control and monitoring activities of the DLI have already been started more than 10 years earlier. Today the air quality in Cyprus is accessed with the aid of a network of nine advanced monitoring stations. The main pollutants monitored are nitrogen dioxide (NO_2), sulphur dioxide (SO_2), carbon monoxide (CO), ozone (O_3) and particulate matter (PM_{10}). The data are recorded hourly, presented on a website (see above) and on public indoor/outdoor panels. The DLI is responsible for network operation and for the implementation of abatement measures in order to reduce environmental pressures and improve the air quality. The follow-up and management of Ambient Air Quality in Cyprus is performed under the providences of the Quality of Ambient Air Law of 2002 (N.188(J)/2002) and three series of Regulations that determine limits for the concentrations of certain pollutants in ambient air. The Ministry of Labour and Social Insurance is also in charge for the application of the European Legislation regarding Ambient Air Quality. The Framework Directive 96/62/EC, along with the Daughter Directives (97/101/EC, 1999/30/EC, 2000/69/EC, 2002/3/EC, 2004/107/EC), place a structure on how the Member States of the European Union, included Cyprus, should handle the subjects of Ambient Air Quality, and limit values for the concentrations of various pollutants in the atmosphere are determined.

The objectives of the project "Preliminary Assessment of Ambient Air Quality in Cyprus" were to describe the temporal and the spatial distribution of the air pollutants and the assessment of their results with regard to find out the main polluted zones and to propose abatement measures for improving the air quality where necessary. The project covered the following subjects. All parameters relevant for air quality issues had been investigated in both parts of Cyprus, in cooperation with the Greek and the Turkish Cypriot Communities:

- Emissions Inventory
- The spatial distribution of air pollutants, determined by diffusive sampling
- The temporal variation of air pollutants, determined by continuous measurements
- The vertical distribution of air pollutants, determined by balloon soundings over Nicosia and Limassol
- Calculation of complete concentration fields over Cyprus using measurement results and modelling (interpolation and novel neural network)
- Overall evaluation and recommendations using the results of measurements and modelling.

In the following chapters some relevant project results are shown exemplarily and some recent long term results from the running network are presented.

Emissions Inventory

The emissions inventory was aiming at the collection and processing of appropriate data for the estimation of air pollution emissions from different sources. Usually, much of this information is available through the databases of EUROSTAT, but not for Cyprus. This was the first time such a systematic and coherent emissions inventory was performed. Some data were available from different departments, but these had been collected for other purposes. Apparently, the work performed within the framework of this project was a first good approximation and had set the basis for continuous improvement and update of the developed database. The air pollution sources being considered in this project are treated as linear, point and area sources. The considered point and area sources are boilers including industrial furnaces, dry cleaners, hotel industries, domestic heating in hospitals etc., petrol stations, aircrafts at the airports, agriculture activities and a lot of quarries. The last ones are registered, but their diffusive particulate matter (PM) emissions could not be quantified until now. All emissions have been calculated as daily (24h) and annual loads, finally summarized in 1x1 km grids over Cyprus.

The overall annual emissions of air pollutants in the Greek (GCC) and Turkish (TCC) Cypriot Communities for the reference year 2001 are listed in Table 1.

Table 1: Overall annual air pollutants emissions of all investigated sources in Cyprus in 2001

Pollutants Sources	NO_X tn/yr	CO tn/yr	VOC tn/yr	PM tn/yr	SO_2 tn/yr
Boilers	11747	221	515	1655	39932
Dry cleaners	31	8	211	8	334
Hotels	21.6	6.3	0.25	2.2	91.1
Domestic heating	65.6	98.1	3.82	39.2	1666
Agriculture	19.5	29.2	1.1	11.7	498
Petrol stations	-	-	736.4	-	-
Aircrafts	258	64.5	2.613	90.2	18.29
Traffic only exhausts	13256	39549	8271	667	7078

The boilers include the power plants which are the main sources for NO_x and SO_2. The other important source for NO_x and the main source for CO and volatile organic compounds (VOC) is traffic, especially in the cities. PM is emitted from industries (boilers with their combustion processes, cement factories etc.), from vehicle exhausts and from wild waste burning or forest fires.

Due to the dryness of the country, re-suspension of natural soil and of road dust plays an important role within PM emissions. But such diffusive emissions could not be quantified within the emissions inventory. Their contribution to the PM_{10} load was investigated by ambient air PM samplings and analyses (Kleanthous et al. 2007).

Spatial Pollutants Distribution – Results of Diffusive Sampling and Modelling

The spatial pollutants distribution has been determined by diffusive sampling at 250 sites in Cyprus over one year for the components NO_2, SO_2, benzene and ozone. The concentrations distribution over the whole island was determined by interpolation between the sites.

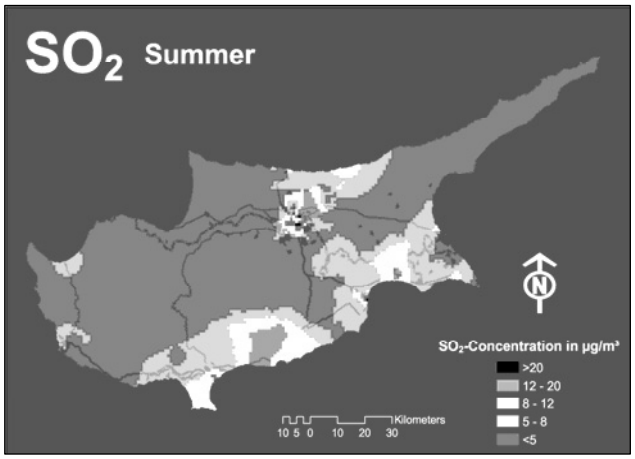

Figure 1: Mean interpolated SO_2 distribution over Cyprus during summer

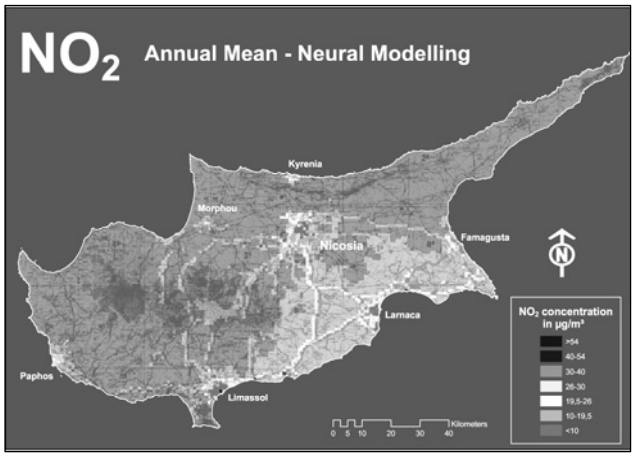

Figure 2: Annual average NO_2 distribution calculated with neural network model

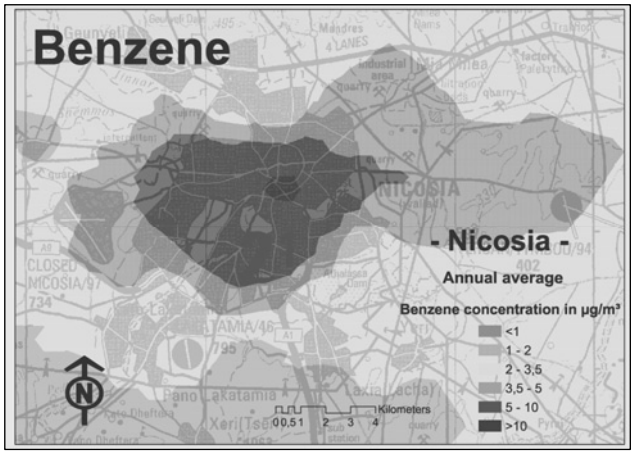

Figure 3: Mean annual interpolated Benzene distribution in the city of Nicosia, average values in 2002/2003

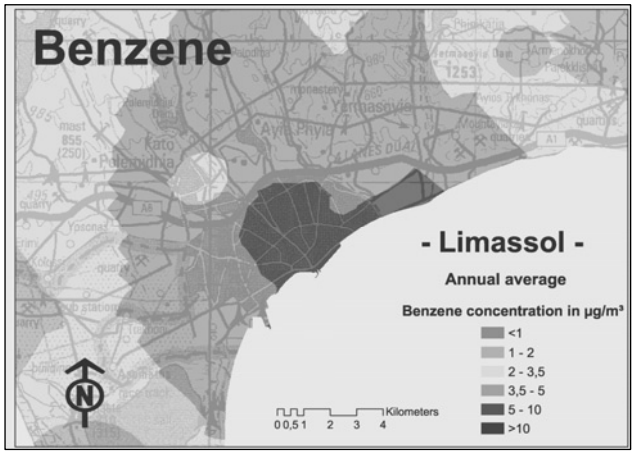

Figure 4: Mean annual interpolated Benzene distribution in the city of Limassol, average values in 2002/2003

The concentration map for the component SO_2 is shown in Figure 1. On the one hand the cities can be identified in this map and on the other hand the power plants as main SO_2 emission sources. In Figure 2 the NO_2 concentration field over Cyprus is shown,

calculated with a Neural Network Model trained with the average concentrations at the points of diffusive sampling (Baumbach et al. 2007). The cities, the main roads and highways are the main areas polluted by the compound NO_2. Benzene, emitted mainly from motor vehicles, is an indicator for traffic pollution. Therefore, the cities with high traffic load are mainly affected. In Figure 3 and 4, the mean annual interpolated benzene distribution in the two largest cities of Cyprus, Nicosia and Limassol, is shown. The highest concentrations were measured in the city centers, with the major traffic emissions and in some cases in poorly ventilated areas e.g. street canyons like the Makarios Avenue in Nicosia (for further details and better visibility of Figures 1-4, check the website http://www.airquality.dli.mlsi.gov.cy).

For different land use categories the air pollution load was classified based on the diffusive sampling results. These classification results are listed in Table 2.

Table 2: NO_2, Benzene, SO_2 and Ozone concentration levels at the different site categories – averages from one year diffusive sampling.

Site Category	NO_2 average in µg/m³	Benzene average in µg/m³	SO_2 average in µg/m³	Ozone average in µg/m³
Commercial (Municipality Market, Larnaca + Armenias Street + Ezekia Ppaioannou Street, Nicosia	**48,7**	**8,4**	**16,1**	-
Urban background	**39,7**	**7,3**	**11,4**	60,9
Traffic	**38,9**	**6,7**	**13,2**	
recreation	32,9	-	-	-
residential	23,2	2,8	7,5	74,4
Industrial	22,7	3,5	6,6	92,7
touristic beaches	19,9	1,0	9,2	77,6
peripheral	16,8	1,7	4,2	-
Airport	15,0	1,3	5,1	-
village>700	14,0	1,7	6,9	81,0
Touristic	11,9	2,2	8,5	
sensitive area (Akrotiri – Salt Lake)	10,7		-	-
village<700	8,1	1,2	4,8	78,8
agricultural	7,0	1,6	-	73,4
mountainous, forests	2,6	0,5	3,2	95,5
mountainous, no forests	2,0	1,1	2,2	102,6

According to this table the land use categories with air quality problems are:

- At the first three site categories in Cyprus cities the pollutants NO_2 and benzene reach average concentration values higher than the Upper Assessment Threshold and even higher than the future EU limit values. The first three main polluted site categories are city areas with high traffic load, e.g. Makarious Avenue in Nicosia
- Poorly ventilated inner city areas (urban background and commercial places, e.g. municipality market in Larnaca)
- The most serious problems exist if both categories occur together:
  poorly ventilated areas with a high traffic load
- Ozone shows high values in highly elevated background areas like the Troodos mountains. But ozone is an overall transboundary problem
- In the cities the ozone concentrations are lower than in the background because of the depletion by the primary pollutants emitted there.

Tethered Balloon Vertical Soundings

Tethered balloon soundings were carried out in winter and summer 2003 in Nicosia and in Limassol. The main target of these soundings was to find out the effects of inversion layers on the atmospheric air pollution concentrations in the cities, their influence on the dispersion conditions in the atmosphere and the correlation with weather classes. For this, the vertical air pollution stratification over these cities up to the height of more than 400 m above ground had been investigated. During the campaigns, the vertical distribution of ozone and NO_2 concentrations were measured above both cities. Besides that, different meteorological parameters (temperature, wind speed and wind direction) were also recorded as vertical profiles. Two typical results of soundings over Limassol are depicted in Figures 5a and 5b for June 2003. The profiles in 5a had been recorded during a nocturnal inversion situation. The barrier effect of this surface inversion can clearly be recognized in a height of around 180 m above ground. Below this height the wind speed is very low and the NO_2 concentrations are clearly increased.

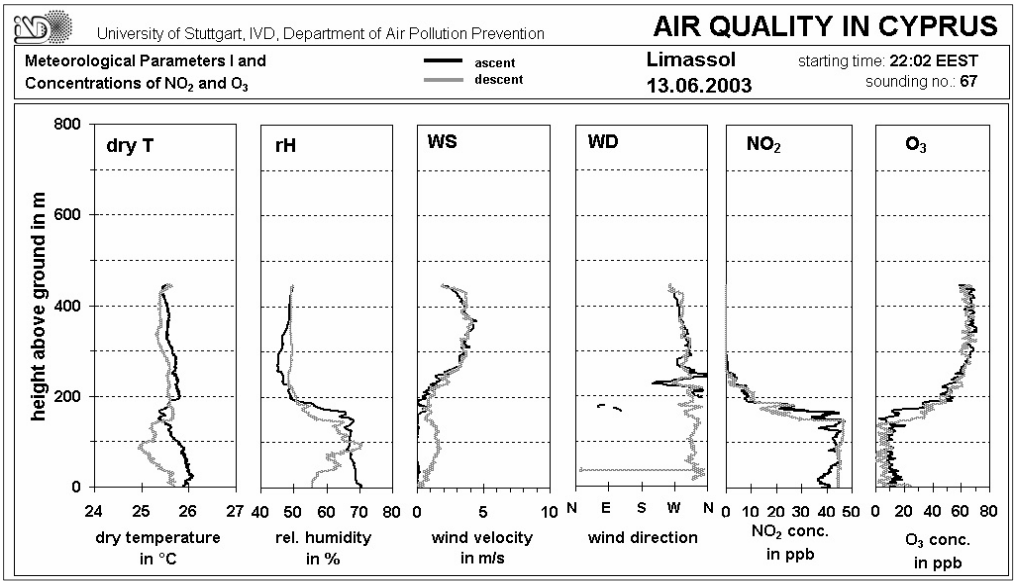

Figure 5a: Typical sounding results during summer 2003 in Limassol, night time

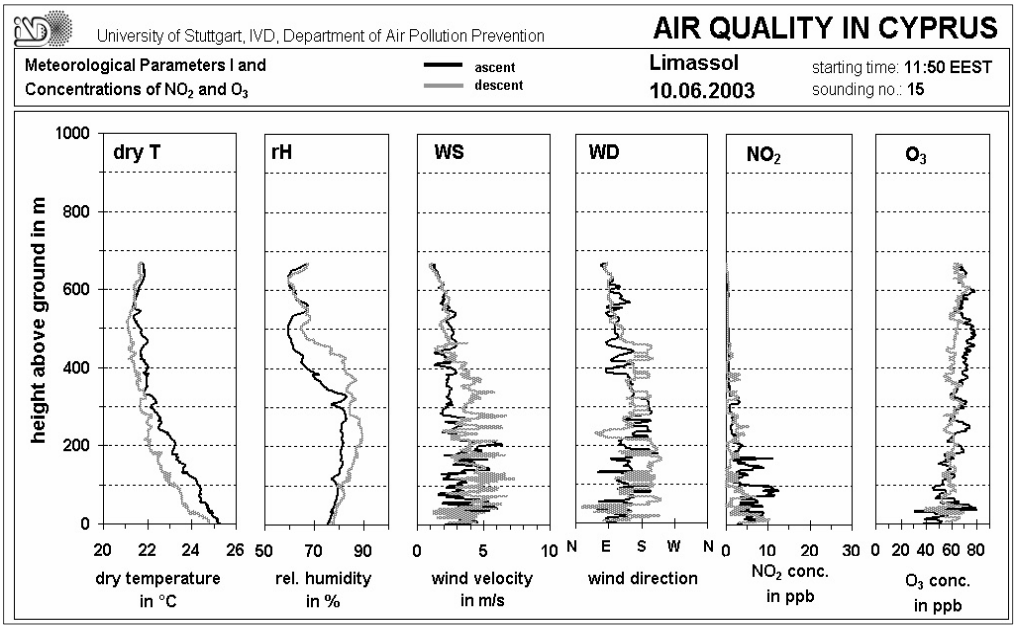

Figure 5b: Typical sounding results during summer 2003 in Limassol, midday

During the day all inversions are dissolved and ozone shows even profiles over the whole sounding height, same as in winter, but on higher level in summer (Fig. 5b).

Care has to be taken that the nocturnal fresh air flows are not blocked by building and hotel constructions as it is the case in Larnaca. There, behind the hotel line the ventilation is very constricted and the air pollution is high.

The PM Situation in Cyprus

Due to the dry climate in Cyprus PM is re-suspended from soils and other surfaces. The wash out of PM from the air occurs only during rainfalls in winter and spring time. In summer and fall there is nearly no rain cleaning the air. It can be recognised that at all traffic and at some residential and urban background sites the current EU limit values for PM_{10} are exceeded.

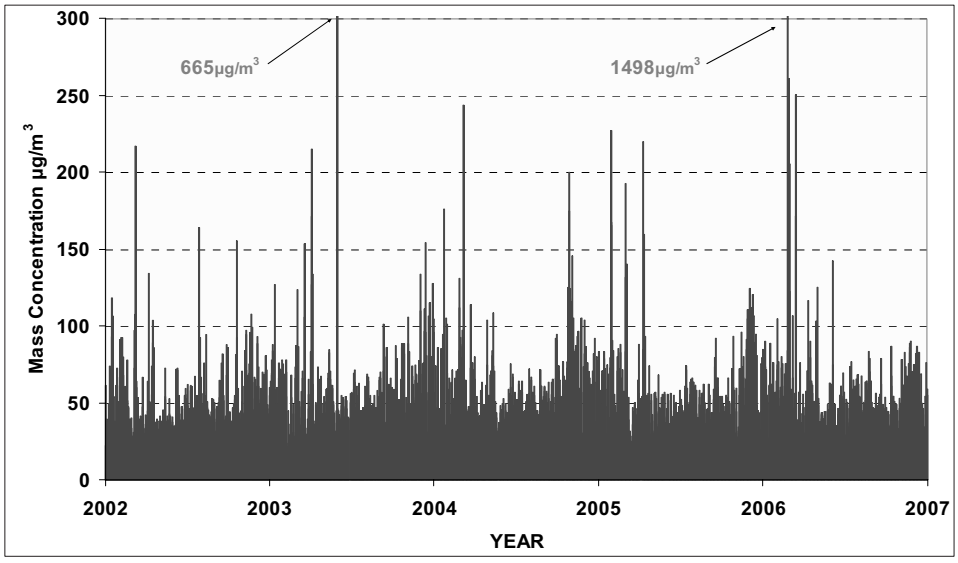

Figure 6: 24h average PM_{10} concentration in Nicosia traffic site over 5 years

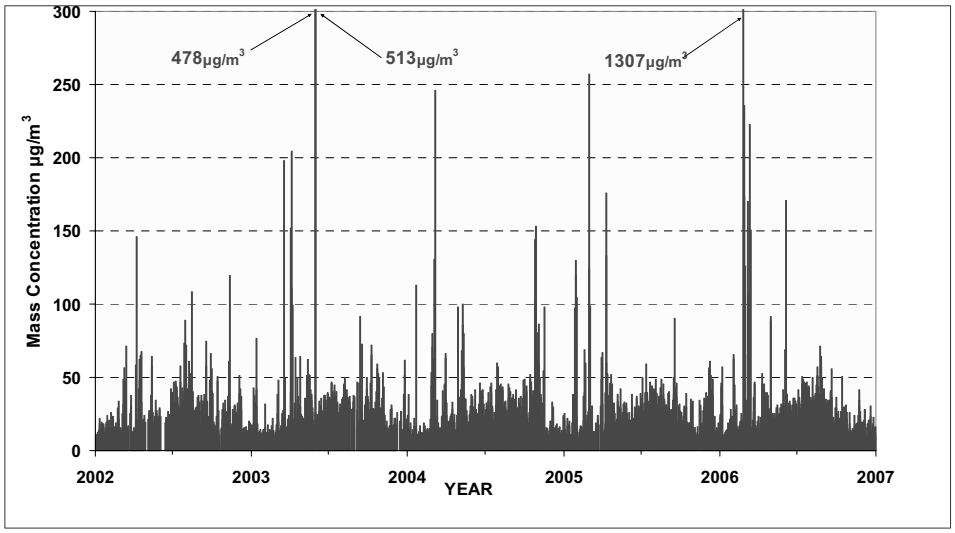

Figure 7: 24h average PM_{10} concentration at the background site Agia Marina over 5 years

Figures 6 and 7 show the long term PM_{10} monitoring of DLI, all 24h values are depicted as vertical lines. Figure 6 shows the temporal development at a traffic site in Nicosia and Figure 7 the results of a background station near the village Agia Marina.

Most of the high PM_{10} peak values are caused by Sahara dust events. Such sand storms affect the whole country and can be observed at all monitoring stations nearly at the same time.

The basic PM_{10} load at the background station is mainly due to re-suspended soil of the surroundings because of the dry climate. But the EU PM_{10} annual limit of 40 µg/m^3 and the 24h limit of 50 µg/m^3 are not exceeded there, especially when the Sahara dust events are subtracted.

The situation at the traffic site in Nicosia is exemplary for many traffic sites in Cyprus: The annual limit of 40 µg/m^3 is exceeded and the 24h limit of 50 µg/m^3 is exceeded more than 35 times. A source apportionment has been done (Bari et al. 2005) and it could be shown that about 20% of this dust is due to exhaust emissions and 25% due to abrasion and re-suspension of mineral dust. So, reduction measures should be focused on these two main sources.

Conclusion

As a result of all the measurements carried out in the project it can be stated that the most affected sites in Cyprus are: high-traffic zones in the cities, poorly ventilated city areas with traffic influence, residential areas influenced by nearby traffic zones, surrounding areas of power plants and cement factories and some special industries, neighborhood of quarries, sites affected by uncontrolled burning, such as surrounding areas of wild waste burning and of field or bush fires. To improve the air quality different measures have been recommended in the project.

The realisation of such measures has different time scales. Not all measures can be realized immediately because of costs or other reasons. But some measures could be implemented at once. In the following the recommended air quality improvement measures are classified according to the responsibilities.

For improving the air quality in the cities of Cyprus, the following measures have been proposed:

1. Introduction of air quality and urban climate aspects into the city planning of all cities in Cyprus: No development plan should be decided without an air quality and climatic expert's opinion which considers the ventilation of the cities and of high-traffic roads
2. Studies for the design of integrated traffic systems for each major city of Cyprus including modern traffic management systems
3. Initial set up of bus systems with high frequency servicing (and priority lanes and traffic lights) in the major cities and as interconnection between the cities. For Nicosia the installation of a combined trolley bus system has been proposed (electric driving in the city, diesel operation outside the city)
4. Establishing of school bus systems
5. Extending of pedestrian areas
6. Promotion of cycle ways
7. Planting of bushes and hedgerows at the edges of fields
8. For existing poorly ventilated roads in the cities, the traffic emissions have to be reduced drastically (by the measures mentioned above)
9. Drastic emissions reduction in poorly ventilated inner cities by closing them for traffic (except electric trolley buses), e.g. inner cities of Larnaca, Kyrenia and Makarios Avenue in Nicosia.

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NO DECREASE IN PM_{10} CONCENTRATIONS IN AMSTERDAM IN THE PERIOD 1999 - 2005

Saskia van der Zee, Harald Helmink and Dave de Jonge

Introduction

Air quality limit values for particulate matter (PM_{10}) were set by the European Union in 1999 with the first Daughter Directive (99/30/EC). The limit values were implemented in Dutch legislation in 2001. Since then, PM_{10} concentrations near main roads in Amsterdam are close to or in exceedance of the EU limit values. The assumption was that PM_{10} concentrations would decrease gradually due to general control measures, e.g. decreasing tailpipe emissions per vehicle. National forecasts, calculated by the Netherlands Environmental Assessment Agency (MNP) indicate that PM_{10} concentrations will decrease yearly until at least 2020 (MNP 2006).

We evaluated if there was indeed a downward trend in PM_{10} concentrations in the city of Amsterdam in the period 1999-2005 using data from the local Air Quality Monitoring Network. The study period was limited to a period of seven years because of a major reorganisation of the network in the summer of 1998. Although seven years is a relatively short period to analyze the long term trend in air pollution, we think it is important to give a first indication of a trend. Decreasing PM_{10} concentrations are necessary in order to meet the EU limit values in 2010.

Methods

The Amsterdam Air Pollution Monitoring Network is operational since 1971, but has undergone major changes in the last decades. In August 1998, the network was reorganized focusing more on indicators of traffic related air pollution. Since then, PM_{10} is measured at one roadside station (Stadhouderskade: 24.000 vehicles/24 h), one motorway station (Ringroad West, 123.000 vehicles/24 h), and two urban background stations. PM_{10} is measured with TEOMs at 50 ºC, using a correction factor of 1.3 for underestimation of volatile compounds. This factor is prescribed by the EU and confirmed in an intercomparison study where the TEOM measurements were compared with

gravimetric measurements using Low Volume Samplers according to EN12341. We analyzed the trend in annual mean PM_{10} concentration in the period 1999-2005 using linear regression, with PM_{10} concentrations as the dependent variable and the number of years (varying from 1 to 7) since start of analysis as the independent variable. The resulting regression coefficient represents the change in concentration per year in $\mu g/m^3$.

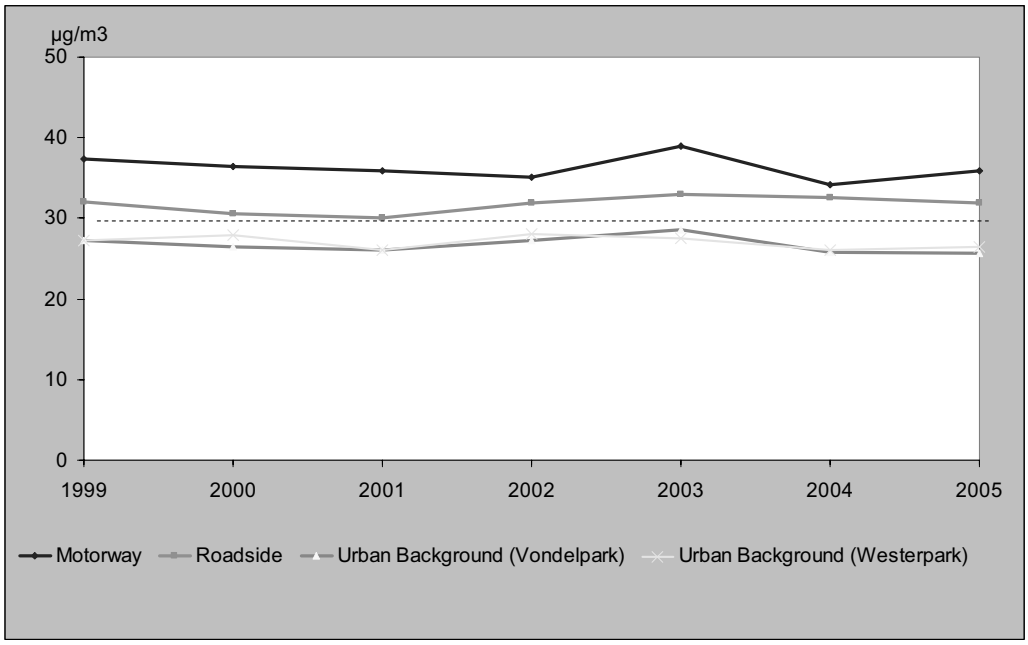

Figure 1: Annual mean PM_{10} concentration in Amsterdam in the periode 1999-2005

Results

Figure 1 shows the trend in annual mean PM_{10} concentrations. It shows that there was no significant decrease (or increase) in PM_{10} concentrations in the period 1999-2005. Trend analysis using linear regression also showed that there was no trend (table1) at all four stations.

Table 1: Results of trend analysis with linear regresssion, using annual mean PM_{10} concentrations. Regression coefficients (β1) and standard error (s.e.) in $\mu g/m^3$ per year

	β1 (s.e.)	p-value trend
PM_{10}		
Motorway station	-0.21 (0.31)	0.54
Roadside station	0.24 (0.19)	0.27
Urban background station (Vondelpark)	-0.13 (0.21)	0.56
Urban background station (Westerpark)	-0.18 (0.15)	0.30

Discussion

This study shows that PM_{10} concentrations in Amsterdam have not decreased in the period 1999-2005. This is in contrast with emission inventories from the Netherlands Environmental Assessment Agency (NEAA), which reported a decrease in total PM_{10} emissions in the Netherlands during the study period (NEAA 2006). PM_{10} emissions from road traffic, which is the major source of local air pollution in Amsterdam, have also decreased. Due to technical improvements and sharper emission standards, the primary PM_{10} emission per vehicle (in grams per kilometre) decreased between 1999 and 2005 (NEAA 2006). Amsterdam-specific emission inventories are not available. However, measurements and calculations of the Amsterdam Traffic and Transportation Department indicate that traffic intensity within the city of Amsterdam has remained at a constant level in the past years. This suggests that primary PM_{10} emissions in

Amsterdam have decreased in the period 1999-2005. However, this does not translate in decreasing PM_{10} concentrations in Amsterdam.

The results of our study are in line with those of Fuller et al. (2006) who reported on the trends in PM_{10} concentrations in London between 1994-2004. Their study shows that, when focusing on the period 1999-2004, no decrease in PM_{10} concentration was observed at either urban background or roadside stations. Primary and secondary PM_{10} concentrations were modelled with source apportionment. They concluded that although secondary PM_{10} concentrations were decreasing, primary PM_{10} concentrations had increased during the study period. This contradicts emission inventory estimates, which indicated a reduction in the emission of primary PM_{10} in the United Kingdom (Fuller et al. 2006).

PM_{10} emission factors include primary emissions from tailpipe and non-tailpipe sources (tyre, break wear, road abrasion). PM_{10} from secondary and natural sources, and resuspended road dust are not included.

Primary PM_{10} emissions from non tailpipe sources might exhibit an upward trend due to increased vehicle weight. Average European passenger car weights have increased by 30% in the last 30 years, and such increased vehicle weight should lead to increased emissions of PM_{10} from tyre and brake wear (Carslaw 2006). Emissions from tyre and brake wear and road abrasion are included in Dutch PM_{10} emission factor estimates, but increased vehicle weight might also lead to a larger contribution of resuspended road dust.

Primary PM_{10} emissions from tailpipe sources have decreased according to emission inventory estimates. However, vehicle tests performed in the United Kingdom suggest that reduction in emissions of PM_{10} from Euro III and Euro IV vehicles may have been overestimated (Collier et al. 2005).

Another important factor that slows the reduction in PM_{10} concentrations is the increasing proportion in kilometres driven by diesel fuelled vehicles. In 1985, the proportion of diesel in all sold fuels in the Netherlands was 30%, whereas this had increased to 55% in 1994 (Statistics Netherlands 2005). Since diesel fuelled vehicles emit significantly more PM_{10} per kilometre driven, this may slow reductions in PM_{10} emissions arising from technological changes.

In conclusion, air quality in Amsterdam has not improved in the period 1999-2005. Measurements of the local Air Pollution Monitoring Network show that PM_{10} concentrations have remained at a constant level. It may be wise to take this into account in forecasts that predict future air quality. If air quality will continue to remain at the same level in the next years, EU limit values will be exceeded at a large scale in the near future.

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NOTES AND NEWS

Assessment of Plans and Programmes Reported under 1996/62/EC – Final Report

The Plans and Programmes (P&P) have to be established and implemented under the Council Directive 96/62/EC on ambient air quality assessment and management (Air Quality Framework Directive; AQ FWD) and its Daughter Directives (DD) in case the sum of a limit value and margin of tolerance is exceeded prior to the date for attainment of the limit value. The P&P should ensure that the limit value is achieved within the specific time frame.

The first P&P were due after the sum of the limit value and the margin of tolerance as stipulated in the so-called first DD (Council Directive 1999/30/EC for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air) has been exceeded in 2001.

Within the P&P project an in-depth assessment has been carried out that should help form the basis for improving the effectiveness of the current provisions in the Directives. The study also assesses the difficulties faced by authorities in establishing P&P. One main focus of this report is on traffic-related measures, since highest pollution levels are often recorded at traffic hot spots.

About 140 P&P reports were available by November 2006. These reports were included in a database; a quantitative analysis of all these reports was performed that yielded information on the main air pollutants, their main sources, the characteristics of the zone affected, the zone area and the number of people affected, the type of station as well as the characteristics of the measures (types of measures, costs, timeframe, responsibilities, indicators, etc.). P&P reports were available for all EU Member States, except Greece and Luxembourg. Most exceedances were reported for PM_{10} and NO_2, some for SO_2. In most cases, traffic was identified as the main source for PM_{10} and NO_2, followed by industry, commercial and residential sources.

This analysis report contains a quantitative analysis of all P&P Member State reports submitted to the Commission, in-depth analysis of selected P&P, compliance with limit values, cost effectiveness of measures, integration of transport planes, and recommendations for improvements. It has been carried out by the Austrian Federal Environment Agency under a contract of the European Commission. For further information see:
http://europa.eu/scadplus/leg/en/lvb/l28036.htm.

UFIPOLNET presented by EU-COM website under sorting LIFE projects by countries

The Commission DG Environment has begun grouping projects by country and by theme to allow more targeted promotion of LIFE projects and their results. They give overall information on LIFE in each country in the national language(s) plus in English. They will be helpful for projects in all their contacts with journalists. Two of 22 projects in the Environment branch of LIFE (UFIPOLNET is one of the two projects) are presented more detailed. Thematic lists of projects related to hunting, tanneries, olive oil, the Mediterranean, pig manure, different urban issues, EMAS and many other sectors may be found at the “projects by theme website” and give direct access to the projects’ summaries, websites and layman’s reports.

For more information, see:
http://www.umwelt.sachsen.de/lfug/luft-laerm-klima_ufipolnet.html.

Feasibility Study: Regional Air Pollution Control Planning

The health-related requirements to be met by air quality management activities in European Member States ask all administration levels for implementing measures to reduce air pollution. These measures do not only support health protection but also contribute to a better quality of life, particularly in cities.

Concentrations of particulate matter and nitrogen dioxide exceeded limit values in several cities in the Ruhr Area, Germany, so action plans had to be drawn up. Although the measures to reduce traffic related emissions, defined in the action and air pollution control plans, have been implemented, the limit values were exceeded again in many sites in 2006. The realised local traffic restrictions showed first results, but the effects were not sufficient with regard to the necessary reduction of air pollutants.

Against this background, the feasibility study examined possibilities and chances of a regional air pollution control planning for the Ruhr Area. A lot of different measures were proposed which lead to an integrated approach for air pollution control which will help to improve the environmental situation and to protect the public against health risks more efficiently. The feasibility study concentrates on regional measures in the field of traffic. The main results of the study are as follows:

- Strengthening the local public transport by regional optimisations
  It is proposed to optimise public transport interfaces, to ensure a better coordination by setting up local public transport timetables, to adopt air pollution control aims in local and regional public transport plans, and in line with this to define precise environmental standards for public transport vehicles.

- Municipal coordination by implementation of traffic-related measures
  Because of its importance for the regional air control planning, both truck route concepts and city logistic concepts should be coordinated between the cities. This ensures that consisting or ongoing concepts intertwine efficiently. The development of a regional concept for centres to distribute goods was also proposed as an appropriate measure reducing the burden of traffic in inner cities.

- Environmental area
  A regional environmental area (area in which only vehicles with low emissions are allowed to circle) in the Ruhr Area is recommended as an additional tool for air pollution control. In comparison to many small-scaled environmental areas a regional environmental area is the more sufficient and effective model for the cities in the Ruhr Area.

- Common concept for communication and public relations
  The proposed measures of the regional air pollution control planning should be presented to the public. A coordinated approach for communication and public relations will be advisable to improve the acceptability of the measures.

The feasibility study shows the potentials and chances of a common approach by air pollution control planning in a region. It demonstrates the need for an integrated transboundary and precautionary environment and health protection. The proposed measures may contribute to an improved environment and health protection and may also increase quality of life for the citizens in the Ruhr Area.

The full version of the study is available in German language only at http://www.munlv.nrw.de/ministerium/pdf/regionale_luftreinhalteplanung.pdf.

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EU-Project PRONET

This year, the European FP6 project PRONET (Pollution Reduction Options NETwork) has started. The main objective of this project is to facilitate exchange and evaluation of interventions on environment and health exposure reduction measures on a national or regional level and promote implementation of successful initiatives in other regions of Europe. The project will focus on searching for interventions in 2 areas:

Indoor Environment:

Topics that belong to this area are for example environmental tobacco smoke, ventilation, noise, allergens and radon gas. These interventions could be applicable in private homes, schools or other public areas.

Transport, Environment and Health:

The main focus is on the improvement of air quality and the reduction of noise according to the EU directives. The collection and analysis of practice examples are the next steps. They will be presented and discussed in a workshop in November 2007.

The project is coordinated by the Public Health Services Gelderland Midden in the Netherlands and co-coordinated by the Ministry of the Environment and Conservation, Agriculture and Consumer Protection of the State of North Rhine-Westphalia, in Germany. Other partners include (regional) governments, municipalities and research institutes in different European countries. The project will be executed over a period of 3 years. The first 2 years, the focus will lie on collecting and analyzing good practices and building a network of potential stakeholders from different regions across Europe. In the final year, the main activity will be dissemination of the results to the stakeholders. More information can be found on the website www.proneteurope.eu .

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European Commission and WHO/Europe boost Cooperation for Health

Contracts for seven new joint projects have being signed end of March 2007 in Brussels by the European Commission's Directorate-General for Health and Consumer Protection (DG SANCO) and the World Health Organization Regional Office for Europe (WHO/Europe).
The jointly funded projects will be implemented by WHO/Europe over a period of three years. They cover European health policy priorities, such as injuries, equity in health, as well as environment and health.
The two organizations increase their cooperation in areas of European public health around common interests and challenges. They also identify potential for policy improvements through joint action. This cooperation on concrete issues also benefits national health policy makers, because the 27 EU Member States are also members of the European Region of WHO. Partnership between these two international public health actors, which is smoothly coordinated at political, technical and operational levels, means that all EU Member States' public health policies can be better supported. Most of the 53 Member States of the WHO European Region are interested in EU health policies and processes. Beyond its health mandate, WHO/Europe is also a natural ally of the Commission in bringing such EU-generated knowledge and experience to the non-EU Member States.

For more information see:
http://ec.europa.eu/health/ph_international/int_organisations/who_en.htm and
http://www.who.int/bfi/ExtraBud/acg060b.pdf

Public Health Executive Agency (PHEA)

The Executive Agency for the Public Health Programme aims to provide an excellent service in performing the tasks and activities entrusted to it by the European Commission.

The Agency is entrusted with

- managing all the phases of specific projects funded under the Programme;
- executing the budget for all operations necessary for the management of the Programme;
- providing logistic, scientific and technical support for meetings and conferences.

The agency was established on 1 January 2005 in Luxembourg for a period of six years and has an annual budget of some € 5.8 million for its operational expenses. This budget is separate from that granted for the actual implementation of the Public Health Programme.

The European Commission's Health and Consumer Protection DG (DG SANCO) and PHEA have clearly defined responsibilities. The Commission lays down the European Community policy in Public Health, liaises with Member States and sets out related priorities in the annual work programmes. PHEA, which has overall technical and financial responsibility for the PHP implementation, launches calls for proposals and tenders, ensures efficiency in the management of awarded projects and tenders and is in charge of disseminating the results. DG SANCO and PHEA collaborate closely in the execution of their tasks through meetings at both managerial and technical levels and through the agency's reporting structure.

National Focal Points (NFPs) have been nominated in a number of Member States and participating countries to act as national information relay points on the Public Health Programme and to provide local support to potential project applicants.

For further information please have a look at the PHEA presentation brochure (http://ec.europa.eu/phea/documents/PHEA_Brochure.pdf).

PHEA contact information:
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Library of public documents of European Commission for TSAP and CAFE

The Library of public documents of the European Commission gives a couple of presentations and other documents related to the Thematic Strategy on Air Pollution (TSAP) and Clean Air for Europe (CAFE). For further information, see: http://forum.europa.eu.int/Public/irc/env/cafe_baseline/info/data/%2E%2E/%2E%2E/library.

MEETINGS AND CONFERENCES

6th International Conference on Urban Air Quality 27-29 March 2007 in Limassol, Cyprus

The sixth UAQ conference was organized by the Centre for Atmospheric Science and Instrumental Research (CAIR) at the University of Hertfordshire, UK and the University of Cyprus jointly with COST 728, CLEAR, AIR4EU, ACCENT and the Cyprus International Institute for Environment and Public Health in association with the Harvard School of Public Health.

This was the sixth meeting that originally started in 1996 in Hatfield, UK. Over the past decade this series of conferences has played an instrumental role in fostering international collaboration in air quality research. The primary aim of the series of conferences has been to provide a forum for scientists, engineers and decision and policy makers to discuss the latest scientific developments in this field. In particular, it encourages the development of solutions and tools for addressing the problems affecting the urban environment. In this regard the Conference acts as an important forum for all global stakeholders to discuss new research findings, exchange information and to stimulate future air quality management and assessment strategies. About 215 delegates from 41 countries attended the sixth meeting in Cyprus. In total, 135 oral and 85 poster presentations were included in the conference programme. The main themes of the conference were:

- Aerosols
- Air Quality Assessment
- Air Quality in Cities including Megacities
- Air Quality Management, Policy and Tools
- Emissions Measurements and Modelling
- Local-Urban Scale Studies
- Measurements and Remote Sensing
- Mesoscale Modelling
- Personal Exposure and Health Impacts
- Source Apportionment Studies
- Urban Climate/Meteorology

A running theme for the conference has been the scientific understanding of the impacts of air quality on human health especially within cities. This time this topic attracted a separate session of papers. Several of the other sessions also had direct relevance to health impact in terms of assessment methodologies, modelling developments, air quality trends in cities (including Megacities) and measurements of air pollutants. Several key messages were highlighted from the different sessions and some of these are summarised below:

Health impacts and policy response

The conference opened with an overview on Policy Implementations on Air Pollution and Health in the WHO European Region. Within this plenary talk the process and progress in developing and establishing Children Environmental Health Action Plans for Europe (CEHAPE) were introduced for selected country examples, in particular with regard to the goals which deal with the prevention of morbidity and mortality from acute and chronic respiratory effects due to ambient and indoor air pollution. The topic of Personal Exposure and Public Health was focused in a respective section and in some posters. Personal exposure studies dealt with time and spatial variations of air pollutants, time activity patterns in urban areas, as well as health oriented measurement strategies. In the majority of cases, such studies were related to particulate matter (PM_{10}/$PM_{2.5}$/ultra fine particles). Two studies should be mentioned here in brief. The first one which uses the APHEA approach is a 10 years study which was conducted on the Effects of short-term changes in Air Pollution (PM_{10}) on Respiratory and Cardiovascular Morbidity at two public hospitals in Nicosia, and shows a negative influence of higher concentration during winter months, and particularly during Sahara sand storms. The second study

investigated Children's PM_{10} and NO_2 Exposure in Turin. A first assessment on the air pollution showed that about 90% of the children living in the metropolitan area were exposed to concentrations exceeding EU limit values. One of the key questions was which properties of particles affect human health and how the processes and mechanisms differ for different types of particles. In this regard studies on apportionment and attribution of sources of particles are critical to formulate air pollution control measures.
Although there was much emphasis on outdoor pollution, indoor air pollution was also important in determining the overall exposure burden of people.
Several papers highlighted the importance of interaction between policy formulation and science developments and why these need to proceed hand in hand for an effective environment and health protection strategy. From the users' perspective, inclusion of cost effectiveness of measures when testing scenarios would allow policy makers to identify options that were efficient at reducing the environmental impact but at the same time offer cost effective solutions.

Emissions of air pollutants

Although emissions of certain pollutants (e.g. NO_X from road vehicles) may be well known there still remain a large number of uncertainties in emissions of air pollutants in urban areas. For example, these relate to emission factors for particle number, primary NO_2 and non-exhaust particles. Further work is also needed for quantifying emissions of pollen, wild fires, Saharan dust and sea salt. It was important to understand how to take account of the variabilities in the emissions and the influence these have on policy. The use of detailed modelling of engine emissions was proposed to improve current emission databases.

Measurements and chemistry of air pollutants

Much of the information that is required for improving our understanding of health impacts of air pollutants relies on detailed field and laboratory measurements. With regard to particle characterisation there is still lack of good quality size-differentiated datasets on chemical composition (for mass closure), shape and number (e.g. PM_{10}, $PM_{2.5}$, $PM_{1.0}$, ultra-fine). Mass measurements are also scarce for $PM_{2.5}$.

Description of chemical reactions within models is still inadequate, for example, for aerosols and ozone pathways. Research is, therefore, required to update and improve existing chemical schemes that can be implemented in air quality models.

The use of satellite data is now becoming more mainstream and complements the results from ground and aircraft measurements as well as from modelling. It follows that the interaction and synergy with satellite research groups is expected to increase over the next few years.

Developments in air quality modelling

Several papers were presented on the use of multi-nested models or combination of models to analyse air quality affected by complex terrain/urban features. There has been a trend (even by some users) to employ more complex 'one atmosphere' types models to tackle equally complex problems. Most of the reported work was based on the Eulerian approaches used in numerical weather prediction (NWP) models. Computation Fluid Dynamic (CFD) models are also being regularly used for complex situations (e.g. street situations and turbulence caused by buildings). A significant number of studies were now progressing towards more integrated approaches enabling scale interactions to be taken into account in one 'seamless' modelling framework. This allows the impacts of urban air pollution to be examined from local to regional and global scales.

Although there were a host of 'single study' examples, international coordination of model evaluation was being initiated by the efforts of several networks and agencies including COST 728 (Enhancing European mesoscale

capabilities for air pollution and dispersion applications) and the USEPA. This is leading to more thorough and robust approaches to test the performance of complex models in terms of how well they describe the key processes and interactions rather than just the final concentrations. The developments of process orientated models which take account of fundamental interactions (e.g. urban meteorological processes within the urban canopy) require a change in the more traditional approaches to model evaluation. This will have obvious implications for policy and decision makers in the future as they employ new or improved tools for formulating pollution management and impact reduction strategies.

Air quality in cities

The increasing importance of air pollution in megacities was reflected by the fact that this topic was featured as a separate session in the conference. Several studies reported the use of simple passive devices as well as more sophisticated techniques to measure and map air pollution within large urban areas. One of the key gaps in the case of megacities in developing countries was the need for source-related pollution and human exposure data which is essential to formulating effective air quality management procedures. A few studies showed examples of comprehensive and integrated regional air quality management initiatives such as that being operated in California. This type of research demonstrated that current problems (of e.g. particles and ozone formation) demand more sophisticated air quality assessment frameworks and methodologies.

Recent developments in modelling were also apparent in the large number of applications of models for air quality assessment purposes. In particular the session coordinated by AIR4EU (FP6 Project and part of the Cluster of European Air Quality Research) included examples of the use of models and monitoring for more effective assessment of air quality on local to continental scales.

Further information

The conference proceedings are compiled on a conference disc which was published by the University of Hertfordshire (ISBN Number: 978-1-905313-46-4), and which can be obtained from:

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UAQ Conference website:
http://www.urbanairquality.org

Acknowledgements

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6th BIOMET Biometeorological Conference, 26-28 March 2007 in Freiburg, Germany

The 6th BIOMET conference took place from 26 to 28 March 2007 at the Albert-Ludwigs-University of Freiburg, which celebrates its 550th anniversary in 2007. About fifty scientists from Germany, Austria, Switzerland and the Czech Republic participated in this event, which was divided into five sessions covering the following topics: humanbiometeorology, tourism climatology, forest meteorology, agricultural meteorology and phenology.

In total thirty oral presentations and eleven posters have been presented.

The session on humanbiometeorology covered topics such as heat warning systems, quantification of heat waves and their impacts on humans. The development of thermal indices and the assessment of human-biometeorological conditions at the global, regional and city scale for current and future climate conditions were presented. With regard to air pollution of interest was the relationship between meteorological parameters and lung function measurements in patients with chronic obstructive pulmonary diseases. Fine particulate matter ($PM_{2.5}$) concentrations in German Recreation and Health Resorts and their health impacts and reduction potentials were also presented. Another topic dealt with the relationship between indoor and outdoor conditions of the thermal and air pollution effective components and health issues. The session on tourism and recreation climatology focussed on the development of new methods for the evaluation of climate and their integration in tourism and recreation planning.

Climate change and adaptation strategies, especially for tourism in coastal regions, the Alps and other mountainous regions were presented.
The session on forest meteorology dealt with radiation, energy and water balance conditions in forests, forests gaps and glades, including the effect of climate change and land use of forest catchments. Measurements and modelling of energy and compound fluxes and growth dynamics as well as the construction of climate maps for forest areas were main issues. The influence of broken glass on forest fires was also discussed. The next BIOMET-Conference is planned to be held in Berlin in 2009.

The proceedings of the Conference are published in a report series of the Meteorological Institute of the University of Freiburg and are available online: http://www.meteo.uni-freiburg.de.

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DustConf 2007 – How to Reduce Non-road Transport Emissions of PM
23-24 April 2007 in Maastricht, The Netherlands

Studies for the European Commission show that Non-road transport sources contributed 84% to total EU-primary PM_{10} emissions in 2000. These sources include agriculture, industry, fugitive sources, power production, domestic wood/biofuel heating, construction and shipping. Animal housing alone contributes an estimated 20% of PM_{10} emissions in the Netherlands and wood-burning in Germany emits more PM than traffic.

DustConf 2007 - a conference organised by the Netherlands, Germany, Belgium and France - focused on these sources of particle pollution, which have had less attention until now. The conference took place at Maastricht, The Netherlands, on 23 and 24 April 2007 and was attended by more than 300 participants. Sharing best practice, research and solutions was one of the main aims of DustConf 2007.

Many measures to reduce primary PM emissions presented at DustConf are not in common use. These best practices need to be made more widely known, to those both regulating and operating polluting sources, so that they can be more widely implemented. It was shown that the Best Available Techniques are not only new techniques. In many cases the performance of the existing technologies can be improved. This means that with a relatively small effort, and in a short time, important reductions can be realised.

It became clear at DustConf that further efforts need to be taken by all levels of Government also on the sources of PM other than road traffic. Local authorities would need to take stricter local action. For example regulating dust emissions together with agricultural ammonia regulation and action on wood stoves, and take a wider look at

planning applications to require mitigation of both the site itself and other surrounding sources. Federal Governments should consider making financial incentives available for implementation of available measures that will not be implemented otherwise. Where possible they might introduce national legislation being stricter than EU regulation. The European Commission should propose and implement Community legislation to support Member States meeting the Limit Values, and take action such as updating the BREF Best Available Technique documents with respect of particulates, ensuring IPPC is fully implemented and setting type approvals for domestic boilers.

The EU Member States and the European Commission should support international networks of professionals that can provide the exchange of information between different countries, between research institutions and industry, between NGOs and Government.

Several requirements for specific industrial sectors emerged from DustConf:

- For industry, all feasible known and effective actions need to be implemented. The existing and future EU and other policies and legislation need to be used to enhance the use of the Best Available Technologies to reduce emissions of PM, in line with the IPPC Directive and also for smaller (non-IPPC) sources. IPPC needs to be fully implemented in all countries, and the flexibility aspects should be used less often, and only with reasoning given.

- For agriculture, current techniques need to be implemented and others more fully developed. Local regulators need to consider PM together with current regulation, and require appropriate solutions for their area. Government and regulators need to set the organisational arrangements to ensure implementation of the currently available techniques. Training and guidance should be run for the regulators and operators.

- Biofuel - particularly wood burning is increasing due to climate change policies. Emissions limits are needed to ensure that the stoves and boilers currently sold use the best technology. Local or national authorities have a role in requiring new wood burning installations to use the latest technologies as well as introduce measures to replace existing high polluting stoves – for example financial incentives and smoke control areas. Appropriate Europe-wide standards for type testing and fuel quality should support this.

One of the key messages of DustConf is that policies to reduce PM emissions should be based on an integrated approach. The aim to reduce PM emissions should become part of strategies to reduce energy use and greenhouse gases and increase renewable energies, revised EU and UN/ECE regulations on National Emission Ceilings and ammonia control regulations in agriculture.

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PUBLICATIONS

WHO

Air Quality Guidelines – Global Update 2005; Particulate matter, ozone, nitrogen dioxide and sulphur dioxide

WHO Regional Office for Europe, Copenhagen, Denmark 2006, 484 pages, ISBN 92-890-2192-6, CHF 100.00, in developing countries CHF 70.00, also available through the web: http://www.euro.who.int/Document/E90038.pdf.

The WHO air quality guidelines offer guidance on reducing the effects on health of air pollution. This book presents revised guideline values for the four most common air pollutants - particulate matter, ozone, nitrogen dioxide and sulfur dioxide - based on a recent review of the accumulated scientific evidence.

The rationale for selection of each guideline value is supported by a synthesis of information emerging from research on the health effects of each pollutant. As a result, these guidelines now also apply globally. They can be read in conjunction with Air quality guidelines for Europe, 2nd edition, which is still the authority on guideline values for all other air pollutants.

The European Tobacco Control Report 2007

WHO Regional Office for Europe, Copenhagen, Denmark 2007, 160 pages, ISBN 978-92-890-2193-7, also available through the web: http://www.euro.who.int/document/e89842.pdf.

This report describes the situation of tobacco control and the status of tobacco control policies in the WHO European Region as of late 2006, reviews the progress made since Member States adopted the European Strategy for Tobacco Control (ESTC) in 2002 and establishes a baseline for monitoring the implementation of the WHO Framework Convention on Tobacco Control (FCTC) in the Region.

It gives an overview of tobacco use and related harm in the Region from 2002 to 2006, and of countries' policy responses and implementation of tobacco control measures in line with ESTC recommendations.

The report also examines countries' policies in the light of the requirements of the WHO FCTC. Several short national, regional and subregional case studies illustrate the lessons learned and challenges faced during the policy-making process.

Development of WHO Guidelines for Indoor Air Quality

WHO Regional Office for Europe, Copenhagen, Denmark 2006, 27 pages, Document EUR/05/5067585, also available through the web: http://www.euro.who.int/Document/AIQ/IAQ_mtgrep_Bonn_Oct06.pdf.

Indoor air quality has a special role as health determinant, and management of indoor air quality requires different approaches than outdoor air. Therefore the working group of the recently published Global Update of the WHO Guidelines for Air Quality (WHO 2006), recommended development of WHO guidelines for indoor air quality. Based on this recommendation WHO convened a working group meeting for the development of indoor air quality guidelines representing scientific expertise in epidemiology, toxicology, exposure assessment, developing country issues, indoor combustion, biological agents, building construction, ventilation and indoor air management. The working group outlined the tasks required for the guideline development in 2007-2009 and recommended a list of special chemicals for which numerical guidelines can be prepared. It also proposed ways to define guidelines allowing for reduction of health risks due to biological contamination of indoor air and due to combustion of solid fuels.

Housing, Energy and Thermal Comfort

WHO Regional Office for Europe, Copenhagen, Denmark 2007, 22 pages, Document EUR/06/5072464, also available through the web: http://www.euro.who.int/document/e89887.pdf.

The impact of climate and temperature on health has been receiving increased attention in recent years. Although a precise assessment of the burden of disease caused by low indoor temperatures is not yet available, indoor thermal discomfort and fuel poverty may be of great importance in many European countries. The report summarizes a project on the health impact of low temperatures based on a review of 10 European countries. Based on the available evidence, the phenomenon of excess winter deaths is significantly related to housing characteristics. A considerable number of death cases could therefore be reduced through adequate housing standards, heating systems and energy supply. Based on the review of the country policies and the scientific evidence, available policy options and intervention strategies addressing this issue are discussed and recommendations for national policies on housing, energy and thermal comfort are made.

OTHERS

The ten most important environmental measures to improve public health in Stockholm County

Stockholm Centre for Public Health, Stockholm County Council, Sweden 2006, 42 pages, ISBN 91-975889-2-X, also available through the web: www.folkhalsoguiden.se.

A working group that included representatives of the Stockholm County Council Centre for Public Health, and the Environmental Department at the Stockholm County Council, was assigned by the County Council Assembly to identify ten actions deemed by the working group to be the most important environmental measures that the Stockholm County Council should undertake to improve public health in the county. The working group considered only those environmental factors that have, at present, a scientifically proven effect on health in the County of Stockholm. In 2006, the following selected measures had been identified by the working group:

- Continuously inform other action parties about the importance of air pollutants to public health, and of the need for improvements
- Ensure that Stockholm Transport (planning and procuring public transport on behalf of the Stockholm County Council) and other organisations within the Stockholm County Council responsible for transport have the resources they need to reduce emissions of air pollutants from vehicles, through such actions as more effectively reducing emissions from their own vehicles and working machines; usind alternative fuels (e.g. ethanol, biogas, and hydrogen gas) in their own vehicles; and requiring such actions in procured transportation services.
- Ensure that Stockholm Transport and other organisations within the Stockholm County Council responsible for transport have the resources they need to reduce noise through, for example, better muffling of the sound from vehicles and traffic systems, and noise-reducing building facades.
- Ensure that Stockholm Transport has the resources to implement an action plan for increasing the percentage of travellers who choose public transport, by making it more customer-oriented.
- Continued support to ex-smokers, and campaigns to reduce the number of people recruited to take up smoking.
- Initiate and stimulate research on the environment-induced health impacts of road traffic, in order to clarify the connections between
    - different kinds of pollutants
    - different particle sizes in solid air pollutants
    - noise

  and the diseases that seem to be correlated to these factors.

Particle Toxicology

K. Donaldson, University of Edinburgh, Scotland, and P. Borm, Zuyd University, An Heerland, The Netherlands, CRC Press, London 2006, 463 Pages, ISBN 0-8493-0921-1, £ 92.-, http://www.crcpress.com/.

The text describes how adverse effects are a consequence of deposition, translocation, and the complex issue of "dose" dominates. Responding to the evolving trend of consumer applications for particulate matter, Particle Toxicology provides the comprehensive resource for current knowledge from which to develop new concepts to understanding particle actions, measurement, testing, and pathogenic exposure to fine and ultrafine particles.

Environmental Health Monitoring System in the Czech Republic – Summary Report 2005

M. Lustigová, V. Puklová (eds.), National Institute of Public Health, Prague, Czech Republic 2006, 126 pages, ISBN 80-7071-267-8, also available through the web: www.szu.cz/chzpa/sumrep.htm.

First EC-JRC Aromatic Compounds Intercomparison with Automatic Analysers

P. Ballesta et al., EC Joint Research Centre, Institute for Environment and Sustainability, Ispra, Italy 2006, 52 pages, ISBN 92-79-03671-8, EUR 22523 EN.

Atmospheric Particulate Matter in Spain: Levels, Composition and Source Origin

Ministry of Environment and Institute Jaume Almera (CSIC), Madrid, Spain 2006, 80 pages, bilingual Publication in English and Spanish, NIPO: 310-06-107-8, available through the web: http://www.nilu.no/projects/CCC/tfmm/paris/es.pdf.

Luftgütemessungen und meteorologische Messungen des Umweltbundesamtes – Jahresbericht 2005

W. Spangl et al., Umweltbundesamt Österreich, Wien 2006, 80 pages, ISBN 3-85457-863-6, pdf-download: http://www.umweltbundesamt.at/publikationen/publikationssuche/publikationsdetail/?&wai=1&pub_id=1638.

Jahresbericht der Luftgütemessungen in Österreich 2005

W. Spangl et al., Umweltbundesamt Österreich, Wien 2006, 176 pages, ISBN 3-85457-862-8, pdf-download: http://www.umweltbundesamt.at/publikationen/publikationssuche/publikationsdetail/?&wai=1&pub_id=1638.

COMING EVENTS

2007

June 2007

Well-Being Indoors - Ninth CLIMA World Congress 2007
10-14 June, Helsinki, Finland.
For more information, see:
http://www.clima2007.org.

Roomvent 2007
13-15 June, Helsinki, Finland.
For more information, see:
www.roomvent2007.org.

Environmental Health Risk 2007 – Fourth International Conference on the Impact of Environmental Factors on Health
27-29 June, Malta. For more information, see: http://www.wessex.ac.uk/conferences/2007/health2007/1.html.

August 2007

Third Int. Symposium on Nanotechnology, Occupational and Environmental Health
29 August – 1 September, Taipei, Taiwan.
For more information, see:
http://nano-taiwan.sinica.edu.tw/EHS2007/index.htm.

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/conferences/2007/urban2007/1.html.

19th Conference of the International Society for Environmental Epidemiology (ISEE)
5-9 September, Mexico City, Mexico.
For more information, see: www.isee2007mx.org.

14th World Clean Air and Environmental Protection Congress (IUAPPA)
9-13 September, Brisbane, Australia. For more information, see: www.icms.com.au/iuappa2007.

European Aerosol Conference 2007
9-14 September, Salzberg, Austria. For more information, see: http://www.gaef.de/EAC2007/.

Particles and Photo-oxidants in Europe
25-26 September, Prague, Czech Republic. For more information, see: http://www.aamg-rsc.org.

October 2007

ASHRAE's IAQ 2007 Conference – Healthy and Sustainable Buildings
15-17 October, Baltimore, Maryland, USA.
For more information, see: www.iaq2007.org.

UFIPOLNET – Final Conference on Ultrafine Particles in Urban Air
23-24 October, Dresden, Germany.
For more information, see: http://www.ufipolnet.eu.

IAQVEC 2007 - Sixth Int. 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.

2008

March 2008

Fifth Healthy Housing Conference
17-19 March, University of Warwick, Coventry, UK.
For more information, see:
http://go.warwick.ac.uk/healthyhousing

May 2008

10th World Congress in Environmental Health
11-16 May, Brisbane, Australia. For more information, see: http://www.ifeh2008.org/index.php.

August 2008

Indoor Air 2008
17-22 August, Copenhagen, Denmark.
For more information, see: www.idoorair2008.org.

October 2008

20th Conference of the International Society for Environmental Epidemiology (ISEE)
12-16 October, Pasadena, California, USA.

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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