



Expert meeting on “Implementation of the Air Quality Directive”

DRAFT REPORT

TIME: March 4-5, 2009
PLACE: Tartu, Estonia
PARTICIPANTS: Representatives from Ministry of Environment (Estonia, Latvia, Lithuania); Estonian Environmental Research Centre; state environmental institutions (Estonia), Environmental Protection Agency (Lithuania), universities (Estonia, Lithuania), environmental consulting company (Estonia, Latvia) and municipalities from all Baltic countries as well as experts from Finland, Sweden and Russia. In total 30 participants (including BEF team).

The expert meeting was organised within the framework of the project titled “Expert meeting: Air Quality” supported by the Estonian Environmental Investment Centre.

WESTERN EXPERTS:

Ms. Minna Aurela Finnish Meteorological Institute, Finland
Ms. Tarja Koskentalo Helsinki Metropolitan Area Council, Finland
Ms. Katja Lovèn Finnish Meteorological Institute, Finland
Mr. Igor Khmylev Committee for Nature use, Environmental protection and Ecological Safety, City of St. Petersburg, Russia
Mr. Ivan Serebritsky Committee for Nature use, Environmental protection and Ecological Safety, City of St. Petersburg, Russia
Mr. Norman Michael Environment and Health Administration, City of Stockholm, Sweden

GOALS OF THE WORKSHOP:

- To facilitate the experience exchange between the Baltic, Finnish, Swedish and Russian experts on issues related to the implementation of the Air Quality Directive
- To discuss the current situation in participating countries
- To discuss the emerged problems and try to find common solutions

PROCEEDINGS:

Wednesday, March 4

Opening of the workshop, by Ms. Ingrida Brēmere, Baltic Environmental Forum, Latvia

Ms. Brēmere opened the expert meeting by briefly reminding the outcomes of the air quality expert meeting held in Estonia in 2007, following she introduced the project, the goals of the current expert meeting and the agenda. Additionally a small introductory round was carried out among the participants of the expert meeting.

I CURRENT STATUS REGARDING THE IMPLEMENTATION OF THE AIR QUALITY DIRECTIVE (2008/50/EC)

In the 1st block of the expert meeting experts from Estonia, Latvia, Lithuania and Finland gave an overview about the implementation of the Air Quality Directive in their countries. Additionally Mr. Serebritsky introduced air quality regulation in Russia.

Current status regarding the implementation of the Air Quality Directive, by Mr. Marek Maasikmets, Estonian, Environmental Research Centre, Estonia

Mr. Maasikmets began with giving a short overview about the current air quality legislation, air quality monitoring network and zones. He brought out that in Estonia air quality legislation does not cover yet the new principles from the Air Quality directive but the work is on-going as the directive must be transposed into Estonian law by May 2010 and that is the responsibility of Ministry of the Environment.

Regarding monitoring he explained that the biggest exceedances in Estonia are in Liivalaia monitoring station in Tallinn where there are PM10 exceeds (63 of daily limit value) and also yearly average is relatively high. Additionally he also briefly described the results from other stations. He also emphasised that in Estonia there is no need for new monitoring equipment as ambient air monitoring is covered already by minimum number of monitoring stations required by the directive.

Air Quality Directive – Current Status, by Mr. Armands Plāte, Ministry of Environment, Latvia

Mr. Plāte firstly talked about PM10 exceedances in Riga city. He pointed out that currently Riga city is close to exceeding PM10 in urban background station and that the main problems are related to traffic. He also explained that the new Riga City Air Quality Improvement Plan has better and more effective measures, as there is more data about i.e. PM10. While talking about activities that have been envisaged to reach good air quality conditions in Riga he emphasised public awareness measures that are always high in agenda – he mentioned that at the moment they are not sustainable and work well only for short periods.

Regarding the implementation of the Air Quality directive he brought out that several studies have been carried out resulting in the fact that now they have a list of measures which needs to be prioritized in order to really start implementing the directive. Mr. Plāte also pointed out that transposition of the directive into Latvian legislation is currently ongoing and after that target and average exposure indicator for PM_{2,5} will be determined.

Air quality assessment in Lithuania – current status, by Donatas Perkauskas, Lithuanian Environmental Protection Agency, Lithuania

Mr. Perkauskas began by briefly mentioning the acts that regulate air quality in Lithuania today. While talking about PM10 concentrations and air quality data in general he brought out that compared to 2007 and 2008 the pollution levels at the beginning of 2009 have been worse.

Following Ms. Perkauskas introduced the website <http://aaa.am.lt> where public has access to different air quality parameters that are available online.

He also explained the main problems causing PM10 exceedings in Lithuania and pointed out that the most important one is winter sanding or salting and its slow cleaning in the spring.

He also shortly talked about measurements and modelling methods used in Lithuania. Bringing up that whole zone modelling is at this point still a problematic issue.

While talking about what has been done regarding the transposition of the directive it was clarified that it is foreseen to be transferred into Lithuanian law until 6th of November 2010 and the average exposure indicator for PM_{2,5} should be elaborated by the beginning of next year in their country. Regarding the chemical composition of PM_{2,5} he mentioned that there is not yet a normal reference method. Additionally he introduced shortly the new problems they are facing while implementing the directive - winter sanding or salting of roads, contributions from natural sources, transboundary air pollution, accreditation of national laboratories etc.

He also emphasised that in the implementation of the directive very important is co-operation between the Member States.

Current status regarding the implementation of the Air Quality Directive in Finland, by Ms. Katja Lovén, Finnish Meteorological Institute, Finland

Ms. Lovén began by explaining how EU legislation has been transposed into Finnish national legislation bringing out that the transposition of the new air quality directive is carried out at the moment with the objective to have a decree which has the same approach as the new directive by the beginning of 2010. She briefly also introduced zones and agglomerations in Finland and described the PM_{2,5} emission sources from which energy takes the biggest part.

While talking about the implementation of the renewed directive she pointed out that the preliminary air quality assessment for PM_{2,5} has been almost finalised but the results have not yet been published (June 2009).

Ms. Lovèn continued by introducing PM₁₀ and PM_{2,5} measurement system in Finland. Real time data from the stations can be found from - www.airquality.fi.

At the end she shortly introduced the preliminary results of the PM_{2,5} assessment stating that the annual averages are below 15µg/m³ all over Finland. To conclude with she brought up that is it challenging task to reduce urban background concentration levels in Finland by local or national measures which would be cost-effective.

Air quality regulation in Russia, by Mr. Ivan Serebritsky, Committee for Nature use, Environmental Protection and Ecological Safety, St. Petersburg, Russia

Mr. Serebritsky started with a short overview of general structure of Russia and pointed out that environmental issues are and object of shared responsibility of the Russian Federation and its Subjects. He explained that the difference between powers of public authorities of the Federation and of the Subjects is in issuing environmental permits for pollutants emissions – only public authorities of the Federation are allowed to do that.

Following Mr. Serebritsky concentrated on St. Petersburg and talked about main sources of air pollution, system of air quality monitoring (instrumental vs. modelling) bringing out that so far only for PM₁₀ was monitored but from this year also PM_{2,5} (equipment was bought at the end of last year but has not been installed yet, measurements should start at least from March 2009). He explained that based on monitoring results it can be seen that some pollutants are in frame of EU levels and some are close.

Mr. Serebritsky also described some measures that are carried out in St. Petersburg in order to improve air quality in frame of the Environmental Policy (includes concrete actions that city has to do to get better air quality).

To conclude he said that the thematic maps of the environmental situation in St. Petersburg can be found from - <http://www.gov.spb.ru/gov/admin/otrasl/ecology/maps>.

Comment from Sweden was made by Mr. Norman and pointed out that:

- Sweden follows EU very closely regarding legislation (similar to Finland)
- PM_{2,5} related legislation will be implemented in 2010
 - New stations will be installed when new legislation comes
- PM_{2,5} data is for last 5-6 years available and hopefully this data will be comparable

Plenary discussion

After the presentations all country groups were introduced a table consisting of three topics and asked to fill it in by country–

- Transposition of the Air Quality Directive (law)
- Monitoring of PM_{2,5}
- Compliance and “hot spots”

The results of the task are presented in the table below.

Country	Transposition AQD (law)	Monitoring of PM _{2,5}	Compliance & “hot spots”
Estonia	Will be transposed in 2010	OK	PM10 in Tallinn, Pärnu?
Latvia	Transposed by 30.09.2009	6 PM _{2,5} stations: 3 city background 2 traffic 1 rural	Riga
Lithuania	2009 started	OK	Vilnius, Kaunas transport stations
Finland	Aim is to – 31.12.2009	Founded 1 urban background (total 2) → 1 background missing	NO ₂ – annual average PM10 – daily average (O ₃ - long term target) PAH – target value HOT SPOTS:

			NO ₂ , PM ₁₀ – Helsinki center street canyons, some busiest streets PAH – small house areas
Sweden		Monitored in Stockholm since 2003 2010: 3 new stations, using Retention method	- Street canyons with high traffic number - Close to highways or large roads - Tunnel exits
Russia		March/April 2009 – 2 stations	1. Traffic 2. Long-range 3. heat & power facilities

II MONITORING OF AMBIENT AIR CONCERNING PM

The 2nd block of the expert meeting concentrated on monitoring of ambient air concerning PM and consisted of country overviews from all participating countries.

Monitoring of ambient air concerning PM in Estonia, by Mr. Erik Teinemaa, Estonian Environmental Research Centre, Estonia

Mr. Teinemaa started by introducing different methods for PM_{10/2,5} measurements (also locations) that are used in Estonia. Following he described the planned actions related to monitoring in 2009 and showed graphs of different PM₁₀ levels bringing out that in Tallinn city centre monitoring station (Liivalaia) there are exceedances in spring (high episodes of PM) but there is no data if this is due to winter sanding or some other reason. Due to the exceedances in hot spots in Tallinn there will be reduction plans.

While talking about modelling versus measured data he said that results show that modelling results are within 50% tolerance measure.

Regarding average exposure index for PM_{2,5} he pointed out that PM_{2,5} has been measured in 3 locations in Estonia - in Tallinn, Tartu and Narva (since 1st of January this year) and reduction target for Tallinn and Tartu stations is 10%.

Mr. Teinemaa also shortly talked about data quality and said that we have to rely on intercomparison measurements and concluded that chemical composition depends a lot about location so everyone should be careful about PM_{2,5} data quality.

Monitoring of Ambient Air for PM₁₀ & PM_{2,5}, by Mr. Armands Plāte, Ministry of Environment, Latvia

Mr. Plāte introduced the air quality monitoring system for PM₁₀ and PM_{2,5} in Latvia pointing out that there are 7 stations for PM₁₀ measurements and 6 stations for PM_{2,5}. PM_{2,5} measurements started in 2007 so there is not yet much data for great results.

He additionally presented some results of monitoring and explained that in two Riga city traffic stations PM₁₀ yearly averages (40 µg/m³ allowed by the directive) are 53 µg/m³ and 46 µg/m³. The average level of PM_{2,5} is close to 20 µg/m³ in Riga (in other stations there is not yet enough data).

PM₁₀ and PM_{2,5} monitoring in Lithuania, by Mr. Mindaugas Bernatoniš, Environmental Protection Agency, Lithuania

Mr. Bernatoniš gave a short overview of the ambient air quality measurement network in Lithuania, which was followed by short description of state ambient air monitoring programme for 2009 – PM₁₀ will be measured in all city monitoring stations (14) while PM_{2,5} in 4 stations (from 2009 one additional station, previous 3 years PM_{2,5} was measured in 3 stations).

He also brought out that Lithuanian stations are appended to EEA NRT data network were real time data (late by 1 hour) goes.

While talking about air quality 2008 annual statistics in Lithuania he emphasised that 2008 was a good year as there were less than 30 PM₁₀ exceedances per year. While 2008 can be considered a good year regarding PM₁₀ then the beginning of 2009 has been rather bad – until the beginning of March there have already been

12-13 exceedances and it can be assumed that by the end of the year there will be more exceeding than previous year. Following he gave a short overview of the main reasons of PM concentration exceedances. He also mentioned as an illogical issue the fact that there are number of days when measured PM_{2,5} concentrations are greater than PM₁₀.

At the end he briefly talked about modelling (AirViro used in Vilnius and Kaunas, ADMS in smaller towns) and mentioned a health survey which results stated that more children have lung disease in areas where annual PM concentrations are higher.

To conclude he explained that public can have access to monitoring data on the website –

<http://stoteles.gamta.lt>.

PM monitoring in Finland, by Ms. Minna Aurela and Ms. Pia Anttila, presented by Ms. Minna Aurela, *Finnish Meteorological Institute, Finland*

Ms. Aurela began by saying a couple of words about air quality monitoring station network pointing out that there are 65 sites for PM₁₀ monitoring and starting from 2009 18 sites for PM_{2,5} monitoring (in 2008 there were 13). She said that there are no problems with annual PM₁₀ levels – for example in Helsinki there were 35 exceedings last year (traffic site). Regarding PM_{2,5} she explained that annual means are below 25 so there are no problems with limit value but average exposure indicator might be a problem (for Helsinki urban sites it is around 10).

Monitoring of ambient air PM concentrations in Stockholm, by Mr. Michael Norman, *Environment and Health Administration, City of Stockholm, Sweden*

Mr. Norman started by emphasising that Stockholm is the winner of the first “European Green Capital Award” 2010. He continued by shortly introducing SLB-Analysis (Stockholm air and noise analysis) that is responsible for the air quality monitoring in Stockholm but not responsible for implementation of the air quality directive. Following he talked about Stockholm-Uppsala Air quality management association, introduced its purposes and stated that from their webpage – www.slb.nu/lvf - for example real time data on hourly basis can be found (unfortunately there is not much information in English).

Mr. Norman talked about the PM₁₀ measuring stations in Stockholm and brought out that the most polluted site is Hornsgatan but compared to the year 2000 (around 100 PM₁₀ exceedings in Hornsgatan) there can be seen a small positive trend (around 60 in 2008) even though currently EQS is exceeded at all street sites. Regarding PM_{2,5} measuring he said that it has been monitored since 1998 but probably it is not equivalent to the air quality directive’s required one so they will have to set up new stations.

He also pointed out that 83% of the PM₁₀ concentrations from the local emissions comes from road wear from traffic (caused by the use of studded tyres and winter sanding).

At the end Mr. Norman also shortly mentioned several health studies based on Swedish PM data that have been carried out in Sweden.

The PM monitoring in the City of St. Petersburg, by Mr. Igor Khmylev, *Committee for Nature use, Environmental protection and Ecological Safety, City of St. Petersburg, Russia*

Mr. Khmylev firstly explained that maximum permissible concentrations for PM₁₀ and PM_{2,5} have not been set yet in Russia but since 2003 regular monitoring of PM₁₀ has been carried out at the Air Quality Monitoring System in St. Petersburg. Following he talked about different measurement methods that have been used for PM monitoring from which since 2006 gravimetric method has been the one.

While presenting the results of PM₁₀ assessment he pointed out that there are exceedances according to EU Air Quality Directive.

Mr. Khmylev finalised by bringing out current plans regarding suspended particulate matter monitoring – for example starting the monitoring of PM_{2,5}.

Plenary discussion

Following discussion concentrated on different PM monitoring related issues:

- In USA there is an extensive network of PM_{2,5} measurements and it was shown that 12 stations could have been simply removed because of background. So there is no point to have too many stations => results can be obtained with less also. It was also brought out that for reducing PM_{2,5} there is not enough info yet about origin It would be necessary to have info about chemical composition, sources => knowledge about actual sources is crucial for reduction and that kind of knowledge has to be given to municipalities and public.

- Municipalities underestimate the importance of rural background. In case PM levels are in high levels it would be important to know what is coming outside of the city as municipalities cannot do anything regarding outer pollution. If that is understood then it would be easier to find/implement reduction measures. It was stated that usually in urban cases traffic is blamed for high concentrations of PM but it does not have to be always the case so modelling and monitoring should be integrated and also scientific research should not be forgotten.
 - Measuring should not be carried out only in one place but for example 1 urban and 1 background station.
 - Each country uses many different methods so it is hard to make them all equivalent. From EU side there is a wish for co-operation so several countries would use same methods as comparative studies are rather expensive. It was stressed that showing equivalence of methods is really important.
 - It was discussed whether EU does or does not require all 27 countries to have reference studies for all used methods - so info from other studies can be used (Latvian approach) but it was brought out that it is still necessary to compare between different methods as it strongly depends on location => if one method is suitable in France it does not have to be suitable in Estonia (or background versus urban). So if a method will be used in country then it should be tested for country conditions. As a solution it was proposed having regular intercomparisons with several countries and thus having reduced costs => regional intercomparisons.
- Finnish experts stated that they are doing intercomparison for 10 methods – the results are almost ready but not yet published. However, other countries could use these results later on.
- It was also discussed if this could be an issue for manufacturers (to show that used method is fine) and not users – so users only later should do small comparison if it is suitable for own country. It was emphasised that each instrument has its advantages and disadvantages.
- As one point it was mentioned that knowing chemical compositions is important for knowing if the method is usable in selected area (Helsinki case).
- There is also the question of which data you can really rely on – i.e. if someone says that one particulate method is not good then how can you rely on that?
- Modelling was rated to be good option as it is not possible to measure everywhere and in that case modelling gives more information.
 - Future trends also were discussed – direct measuring vs. modelling
 - From Estonian side it was said that modelling with the touch of reality from measuring will be most probably the solution for future so still reliable measurements will be needed
 - From Lithuanian side it was brought out that automatic monitoring stations cannot cover all area so modelling is useful.
 - The issue of outdoor /indoor air was shortly discussed but as indoor air issue it was out of the meeting area this time then it was proposed to maybe have next time both.
 - As a problematic issue the lack of data (PM₁₀) about conversion – especially industrial enterprises – was mentioned. How to model conversion process from primary to secondary? (industrial level, for stacks) As a solution was proposed using emission factor database (i.e. American databases seem suitable) => seem to be the best available source for that.
 - The question of error was posed – knowing too many sources of pollution causes bigger error. At the moment 1/3 of sources are not considered in calculations.
 - To concluded with it was stated that sticking to one method you have used is the wisest thing to do as changing the method might cause differences. For changing method it is relevant to have 1-2 years of measuring in parallel with the old one.

Study visit

During the expert meeting a study visit was organised to Anne boiler house and Tartu monitoring station.

AS Anne Soojus incorporates all the boiler houses of the enterprise (Luunja, Ropka, Turu, Tarkoni and all small boiler houses). With the aim to achieve the economic goals of the company and proceeding from the environmental as well as the macroeconomic requirements, the construction of a combined heat and power production plant (CHP) operating on local fuels (saw dust, wood chips, peat)was constructed.

III SURVEYS RELATED TO PM

During the 3rd block of the expert meeting some surveys that were carried out related to PM in Finland and Estonia were introduced. Two aspects were described – origin and health impact of PM.

Origin and source specific composition of PM in Helsinki, by Ms. Minna Aurela and Mr. Risto Hillamo, presented by Ms. Minna Aurela, Finniash Meteorological Institute, Finland

Ms. Aurela begun by shortly describing the methods for chemistry and continued talking in more detailed about the semincontinuous organic carbon and elemental carbon analyzer, Particle Into Liquid Sampler (PILS) and Time-of-Flight Aerosol Mass Spectrometer that were used.

Following she presented graphics about estimation of origin of some events and estimation of sources of some events. She also talked more specifically about 4 different cases (i.e. traffic contribution and biomass burning). She pointed out that particle mass concentration is not a good indicator – knowledge about composition is also needed.

Ms. Aurela summarized that even though we are talking at the moment about raw data then we still can make good estimations about origin and sources.

Discussion

During the following discussion Ms. Aurela explained that the station where measurements were made was an urban background station. She also said that there are no models yet. She also explained that it was difficult to get data and making campaigns is more realistic for such survey.

PM origin survey carried out in Tallinn, by Mr. Erik Teinemaa, Estonian Environmental Research Centre, Estonia

Mr. Teinemaa begun by introducing the background of the study and the location of monitoring points. Following he introduced the results of the study from PM₁₀, cations/anions, heavy metals (rather high concentration of arsenic) and PAH (poly-aromatic hydrogen) perspective. As one output of the study he mentioned that the preliminary data from the study is not sufficient to make straight conclusions. He also shortly introduced the plans for 2009.

Discussion

During the short discussion Mr. Teinemaa clarified that the study was financed by Tallinn city Government in 2008 and for 2009 financing comes partly from Estonian Environmental Investment Centre, partly from Ministry of the Environment project and partly from Estonian Environmental Research Centre.

Health impact assessment of PM in main Estonian towns, by Mr. Hans Orru, University of Tartu, Estonia, Estonia

To begin with Mr. Orru explained what Health Impact Assessment and its design is (if we know the air pollution exposure, baseline morbidity/mortality and exposure rates from previous epidemiological studies then we can assess the impacts on people's health and changes of negative effects in the future) and then continued in more details about the survey that was carried out in 2007 in Tallinn and in 2008 in other towns (Kohtla-Järve, Narva, Tartu and Pärnu). He explained that the long-term effects of PM_{2,5} on total mortality and the short-term effects of PM₁₀ on hospitalization were analysed. He pointed out that it is not sure what is exactly in PM causing these effects but it is certain that something is.

Following he introduced the results of different towns on graphs and also shortly talked about external costs that are caused by PM's effect on health – 65-400 million EUR in a year through premature death and ~1 million through hospitalization costs.

The study concluded that all together PM in outdoor air in these 5 towns will cause in average 450 premature deaths annually which is about 6000 years of life lost in a year. The average decrease of life expectancy per resident is ~8 months.

Discussion

During the following discussion it was brought out that similar study is planned to be carried out also in Lithuania. A survey was described that was carried out in Vilnius some years ago with the same method where respiratory diseases of children (in age of 8-13) was assessed and the result was that in more polluted areas children had more often respiratory diseases.

Plenary discussion

At the end of the day each country delegation was asked to assess the importance of given pollution sources from the viewpoint of PM. The results are following -

Origin of PM

XXX- very important

XX- important

X- rather important

“blank” - not important

? – do not know/no evaluation

X - Estonia

X - Latvia

X - Lithuania

X - Finland

X - Russia

X - Sweden

Pollution source	PM10	PM2,5
Natural (sea spray, forest burning)	XX XX X X	XX XX XX XX X X
Combustion (large, small plants)	XX XX X X	X XX XX X X
Domestic (fireplace)	XX XX XX X	XX X XXX X X
Transport	X XXX (studded tyres) XXX XXX X	X X (studded tyres) X X XX XX
Transboundary (from neighbouring countries)	XX X XX XX X	XX XXX XXX XX XX XX
Long-range transboundary	X X XX X	X XXX XX XXX XXX X
Agriculture (secondary)	X X	X X
Salting & sanding	XXX XXX XXX XX XXX XX	X XX

Results from the identical assessment carried out during the expert meeting held in 2007 concluded that for PM natural, domestic and combustion pollution is quite important for all countries. Regarding domestic pollution it was pointed out that awareness raising of inhabitants is essential in the sense of what they are burning. For PM₁₀ important are also transport and salting/sanding. Most unclear are still transboundary and secondary agricultural pollution. In general the trend seems to be quite common for all countries so the question was raised if that could be used for experience exchange.

The change from 2007 shows that this time for PM₁₀ salting and sanding is the most relevant problem along with the issue of using studded tyres. For PM_{2,5} transboundary pollution was assessed to be the most relevant. There are also several studies available in countries that support the relevance of transboundary pollution. Nevertheless, PM_{2,5} will still be a local problem to reduce local pollution in order to also reduce in that way long-range pollution.

Friday, June 1

IV PM REDUCTION PLANS

The 4th and final block of the expert meeting PM reduction plans in different countries were talked about. All participating countries introduced their situation regarding them except Russia where there is no requirement to have reduction plans for PM.

PM reduction plans in Estonia, by Mr. Marek Maasikmets, Estonian Environmental Research centre, Estonia

Mr. Maasikmets started by shortly talking about the Estonian Emission Reduction Program 2009 (?) - 2015 (still a draft) and continued by describing in more detail the Air Quality action plan for Tallinn which has to be done by the Ministry of the Environment. He pointed out that the draft is ready and will probably be adopted this year.

Mr. Maasikmets also explained that even though making and implementing the action plan is the responsibility of the Ministry of the Environment then actually municipalities should do it but for that a change in the law would be needed even though municipalities are against that as they do not want to be responsible.

He brought out that most effective measures for reducing PM would be investigating the sources of PM, reducing the number of cars in the city centre and planning.

Potential measures to reduce PM_{2,5} pollution, by Mr. Armands Plāte, Ministry of Environment, Latvia

Mr. Plāte talked about possible measures to reduce PM_{2,5} by introducing the results of the BEF-LEPF project "Study on the main emission sources of particulates, impact to air quality and potential for reduction of pollution by particulates". The study included recommendations for measures to decrease particulate emissions in energy sector, transport, industry and construction and agriculture.

PM reduction plans in Lithuania, by Mr. Dainius Martuzevičius, Kaunas University of Technology, Lithuania

Mr. Martuzevičius explained that in Lithuania 7 cities/towns have to prepare reduction plans and in Lithuania this is the responsibility of the municipality. He described the structure of a reduction plan which is set by national legislation and then presented some measures for air quality control (examples from the plans of Kaunas and Šiauliai). He also pointed out that Kaunas was the only municipality that tried to take part in the monitoring network, which is actually costly for a municipality and mainly done by Lithuanian Environmental Protection Agency.

Based on the experience of implementation of these plans he concluded that overall impression is good but he pointed out that there is little knowledge by officials on PM generation, types, origin, composition and size distribution, and although private house heating sector is very important there are few plans addressing this polluter. This one is nearly impossible to control.

Regarding the new challenges in controlling PM_{2,5} – he wondered whether current very detailed PM₁₀ reduction plans do not actually serve better for removal of PM_{2,5} rather than PM₁₀.

PM reduction plans in Helsinki Metropolitan Area, by Ms. Tarja Koskentalo, Helsinki Metropolitan Area Council, Finland

Ms. Koskentalo started by giving a short overview about PM monitoring system in Helsinki Metropolitan Area. She pointed out that there are 11 PM monitoring sites – 9 for PM₁₀ and 9 for PM_{2.5}, and that PM₁₀ and NO₂ limit values are exceeded in Helsinki.

She also said that similarly to Lithuania also Helsinki has short and long-term action plans and shortly talked about both of them.

Following she listed the measures to reduce street dust concentrations, fine particle concentrations and assessed the effectiveness of the measures – saying that it is not easy to evaluate but there have been some research projects and some estimations can be made based on these. For example a really good indicator of the effectiveness of measures is the fact that in 2007 and 2008 PM₁₀ limit value was not exceeded.

PM reduction plans in Stockholm & Sweden, by Mr. Michael Norman, Environment and health administration, City of Stockholm, Sweden

Mr. Norman talked in more detail about several measures that have been tested in Stockholm – intense street wiping, intense street washing, dustbinding, “silent” street pavement, congestion charges. He pointed out that sanding is almost not used in Stockholm – only on pathways, not on streets, tunnels etc. He also described shortly ongoing projects about speed regulation and vegetation in order to improve air quality.

Mr. Norman additionally informed about the info campaigning carried out in order to reduce the use of studded tyres but even though public is more positive about using non-studded tyres there is no reduction in PM₁₀. In the Stockholm city there has been a PM₁₀ reduction plan from 2004 which has two types of measures – measures that should be taken as soon as possible (i.e. reducing traffic) and measures that should be taken relatively soon (i.e. using gravel instead of sand as andi sid).

As most effective measures for reducing PM₁₀ he pointed out reduction in the use of studded tyres and reduction in traffic.

Plenary discussion

Following each country delegation was asked to assess the importance of given criteria for different soft and hard measures from the viewpoint of PM. The results are following -

Origin of PM

XXX- very important

XX- important

X- rather important

“blank” - not important

? – do not know/no evaluation

X - Estonia

X - Latvia

X - Lithuania

X - Finland

X - Russia

X - Sweden

Criteria	Measures	
	Soft	Hard
Experience from other countries	XX X XXX XX XX	XX XX X XX
Results in research/scientific literature	X XX XX XX	X X XX XXX XX
Time for implementation	X X X	XX X

Time for getting results	XX X	X XXX X XX
Direct costs	X X X X X	XX XXX XXX XX XXX XXX
Acceptance of society	XXX XXX (politicians, not society itself!) XX XXX XX	XX X X X
Costs of dealing with side effects	X X	XX XX XX
Technical feasibility (BAT)	XX X X	XX XX XXX XX X

It can be summarized that from hard measures point of view costs are considered very important along with technical feasibility and results in research/scientific literature.

From soft measures the most relevant ones are assessed to be experience of other countries and acceptance of society.

Discussion

The discussion continued about measures for reducing PM:

- It was mentioned that it was surprising that the studded tyre issue is so much investigated in Stockholm. Regarding studded tyres it was also pointed out that reducing the use of studded tyres might cause more lethal accidents => that is a problem to consider as it costs a lot to society.
- Surprising was also the low effectiveness of some measures
- Cleaning of chimneys –
 - A way how to reduce PM from households
 - From municipality point of view
 - Expensive and how much can a municipality influence private sector
 - Not only an issue of the chimney but also depends on the fuel being used
- It is easier to plan in new areas but how to act in old areas where people sometimes are ignorant, houses are old etc. – solution could be in implementing some direct measures and informing but it is nor certain if these measures are effective in short term.

Next steps

Ms. Lovèn from Finnish Meteorological Institute informed about a coming air quality event (Air days) which will be held in 18-19 of August in Lappeenranta, Finland. To that event Baltic experts are also welcome as the topic is related to Baltic Sea area and air quality.

More information about this event can be enquired from Ms. Lovèn.

CONCLUSIONS

- Compliance with the new directive limit values is not yet achieved → every country has indicated “hot spots”
- There is a variety of methods in use for measuring of PM, however the compatibility of data has to be validated
- In future the assessment of air quality will probably rely on model calculations BUT touch of reality from the direct measurements is still necessary
- Current trend in air quality assessment is moving from measurement of total concentrations towards estimation of pollution sources and quantification of health effects
- Effective reduction of air pollution at local level will also reduce transboundary pollution
- Extensive lists of possible measures for PM reduction are available in countries BUT conformation of real effect has to be still proven

All the slides of the presentations held during the expert meeting can be found from BEF Estonia homepage - <http://www.bef.ee/index.php?id=716>.

*Report by Sandra Oisalu
Baltic Environmental Forum, Estonia*