Air Quality in the Slovak Republic - Monitoring of air pollution and audit of Quality System (SLK/021/02)
Sindy/2003/verslag slovakije FINAAL.doc

Minutes of the meeting in Bratislava, Slovakia, 11-12/03/03.

This meeting was the first one in the framework of the project "Air Quality in the Slovak Republic - Monitoring of air pollution and audit of Quality System (SLK/021/02).

The meeting was organised to exchange information on Air Quality Monitoring and the use of passive samplers, to discuss the planning, the financial and administrative aspects of the project.

The agenda is added as annex. A copy of the presentations can be obtained. A list of the participants is attached in annex B.

1. Air Quality Monitoring

Lubor Kozakovic discussed the Air Quality Monitoring in the Slovak Republic and the Air Quality Assessment.

A National Urban and Local Air Quality Monitoring Network is operational to assess the general exposure of the population and the air quality in local problem areas.

A Regional Air and Precipitation Quality Monitoring Network is operational in rural areas. The goal is to assess the impact of air pollution on vegetation and ecosystems.

All monitoring activities are carried out by SHMI, which has long term experiences in this field. The first manual stations were put in operation in two largest cities (Bratislava and Kosice) in the year 1970. The present air quality monitoring network covers all the pollutants from the framework directive except benzene, Hg and PAH. The start of the latter measurements is planned this year. Benzene through the corporation project with Flanders.

Except of national network the largest emission sources are obliged to build up, to operate and measure air pollution level resulted from these sources. These stations are operated independently from the SHMI. According to new Clean Air Act operators of these local stations have to provide representative data to the SHMI, but SHMI does not guarantee the quality of these measurements.

In Bratislava Petrochemical complex Slovnaft operates 3 monitoring stations located in the suburb of Bratislava and therefore the data will be in the future very useful for AQ assessment.

Formally the national network is divided into 3 regional sub networks where are regional departments of SHMI. Each of this regional department is responsible for operation, functioning and maintenance of monitoring stations which belong to their region. Bratislava, which is located in the western part of SR, provides also primarily validation of data from Bratislava and Kosice regions. At SHMI in Bratislava is located central database where also final validation is carried out and data are regularly submitted to EC, EEA, ETC ACC in frame of EoI Decision, Ozone Directive and on the base of other requirements. Banska Bystrica is responsible for primarily validation of measurements from monitoring stations in the middle part of Slovakia. At present operators in Kosice in the eastern part of Slovakia can only browse the data. The necessity to improve data validation process was emphasized. Some activities have been already started at SHMI to improve and facilitate this process. Next step is to incorporate objective statistical method for detection of erroneous data. Such a method was developed at Czech Hydrometeorological Institute and is applied for several years for detection of gross errors in measured data time series. It is expected that this project will help to improve of the quality of measured data and some of such tools will be implemented.

A new Clean Air Act was adopted in Slovakia in 2002. The Slovak country is divided in 10 zones (2 agglomerations and 8 zones), all based on administrative borders. The data have been evaluated versus LAT, UAT and LV. Exceedance of LV + MOT occurred in 2001 for:

- SO₂ around a carbon power plant (Trencin)
- NO₂ in Bratislava
- PM10 in Kosice (near largest ferro industry)

The gaps with regard to the EU directives are the following:

- Three zones with no measurements. Will be started in 2003.
- Benzene measurements. Will be started through the Flemish - Slovak project.
• Comparison of PM10 automated method with the reference gravimetric method.
• Full information on reasons for exceedances is lacking.
• What is the contribution of natural origin and LRTP in the PM10 concentration.
• Air Quality assessment over the whole area.

Dusan Zavodsky discussed the Air Quality Assessment based on model calculation:
1968: First guidelines for regulatory modelling
1979: Second guidelines
1982-1993: LRTAP model for central Europe
   Nuclear safety of NPP: dispersion of radioactive substances
1994: Current guidelines for regulatory modelling
1994-1997: ETEX: episodic trajectory model - 3 layers
1998: MEDIA: French Eulerian episodic model for large industrial/NPP accidents
Current effort: CEMOB - Dr. Szabo, SHMI (Kosice): Model for the whole territory of Slovakia.
Compared with the measurements the model results agreed with the measurements with an error of 30%.

Jasmine Dumollin discussed the Air Quality Monitoring Networks in Flanders and the Zonation. An overview was given on the existing monitoring networks in Flanders, including a brief overview on the measuring and calibration techniques of the automatic monitors. Afterwards she gave some details on the methods and principles which Flanders used for the definition of the different zones. Next to that an overview of the assessment of the pollutants defined in the first daughter directive was presented. As a conclusion some addresses of interesting web sites which could be of any use were written down.

2. Passive samplers

Eddy Goelen discussed the measuring strategy used for the measurements of benzene by using passive samplers in Mechelen.
In this study a grid of 800mx800m has been constructed over the entire area of the town. In each grid a regional background measurement as well as a hot spot measurement has been analysed.
Extra samplers (2x3) are used not only to assess the influence of the highway (E19), but also to assess the influence of the industry in the South of Mechelen.
Outside the grid in every wind direction rural regional background measurement is done.
Besides benzene, all other organic pollutants which are absorbed on active carbon can be measured.
Afterwards Eddy Goelen discussed in detail the method of passive sampling

3. Visit of measuring stations and laboratories

The monitoring stations next to the institute (new stations obtained with Danish aid), a traffic station in the centre of Bratislava and an urban background station in the south of Bratislava have been visited.
The inorganic and organic laboratory as well as the heavy metals laboratory were visited too.

4. Discussion of workplan, financial and administrative issues.

The different aspects of the workplan, the financial and administrative issues were discussed. The discussion resulted in the following preliminary agreements.

4.1. Passive samplers

VMM will buy a first lot of samplers. About 20 to 30 shelters have to be foreseen in a first stage.
VITO will send some loaded tubes to be analysed by the SHMI as a first trial of their analytical performances.
A visit of 2 or 3 days from Slovakian laboratory people to the laboratory of the VITO will be organised to give them a training on the analysis of passive samplers for SO2, NO2 and benzene.
At the end of the visit the Slovaki ans will take some passive diffusers back home to sample them near the institute in Bratislava. Some of them will be sampled in double, so that one can be analysed by the VITO and one by SHMI, and the results can be mutually compared.
If necessary the VITO (1 or 2 persons) will visit SHMI to assist in possible analytical (included sample preparation) problems.
It also seemed necessary that VITO assists at the first stage of measuring strategy (location of the passive diffusers in the field).
A discussion on the organisation of the measuring campaigns was done. Probably one could start at a smaller scale in the period September - October 2003 and shift later to a larger scale. If indicative measurements for benzene will be organised to check compliance with the daughter directive four sample campaigns of two weeks, evenly distributed over the year seems the most appropriate approach. SHMI will think it over and will make a first proposition to the Flemish partners for further discussion.

4.2. Zonation and monitoring requirements
SHMI wants some assistance for the EU questionnaire concerning the reporting of the Air Quality with regard to the framework and daughter directives. VMM will organise such assistance during a Slovakian visit in Flanders.

4.3. Exchange of information and inspection of network and labs
Field of interest of the Slovakian people are the following:
- Comparative measurement of PM10 by automatic monitors and gravimetry.
- Information on Hg measurements.
- Information of VOC and PAH measurements.
- Daily follow-up of the telemetric network, calibration of a station, data validation and treatment.

The VMM will draw-up a proposition of such an informative programme to be realised during a visit of Slovakian people with a time schedule. The Slovakian people can decide which points will be attended.

4.4. Quality assurance and data processing
SHMI has already realised quite some things in the field of quality assurance in the laboratory. VMM will organise an external audit for this work. Some possible dates will be communicated to the SHMI.

The quality assurance work for the automatic network and the sampling has still to be started. During the visit in Flanders (see point 4.3) the VMM will provide information and guidance on the different steps that have to be realised.

4.5. Financial and administrative aspects
A joint convention between partners has been discussed. Mr. Lubor Kozakovic replaces Ms. Katarina Mareckova as the project leader of the SHMI, since Ms. Mareckova has been designed a new job. VMM will ask the administration if the buying of a GC by SHMI in October 2002 can be accepted as investment cost within the project. VMM will ask the administration if the Slovak co-partner Define s.r.o. can be replaced by reVite s.r.o. (a daughter firm).

VMM will prepare a proposition of time sheets and invoices to be used throughout the project.
VMM will prepare the minutes of the meeting, which will be send by e-mail to the different partners for completion and approval.

5. Closure of the meeting
After the future work plan had been approved, the meeting was closed.
Annex A

Bratislava 11 – 12 March 2003

11 March

9.30 Opening Slovak/Flemish

9.40 Approval of the agenda of the meeting

10.00 Air Quality Monitoring in Slovakia and zonation and AQ assessment - Lubor Kozakovic

10.30 AQ assessment based on model calculations - Dusan Zavodsky

11.00-11.30 Coffee break

11.30 Air Quality Monitoring in Flanders and zonation (brief overview, more in detail during the visit in Flanders)

12.00 Discussion

12.30 Lunch at SHMI

13.10 Assessment of Air Quality with passive samplers measuring strategy

13.40 Discussion and preliminary selection of zones agglomeration where the indicative measurements will be performed and about workplan of the project.

14.10 Assessment of Air Quality with passive samplers – method

14.40 Visit of the laboratories/parallel discussion about financial and organization arrangements

12 March

9.00 Visit of the laboratories/parallel discussion about financial and organization arrangements

10.30 Workplan of the laboratories, timetable and mutual tasks

10.30-11.00 Coffee break

11.00 Assessment of SO2, NO2, benzene in defined areas with passive samplers

11.30 Introduction of passive sampling methods and training of Slovak staff

12.30 Zonation, and monitoring requirements

12.30 Lunch at SHMI

13.00 Exchange of information and inspection of network and labs

13.30 Quality assurance and data processing

14.00 Visit of a monitoring station – Cyril Burda
Annex B

List of participants
Bratislava 11–12 March, 2003

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