Contributions and Recommendations from the Junior Partner Austria

Lorenz Moosmann,
Umweltbundesamt

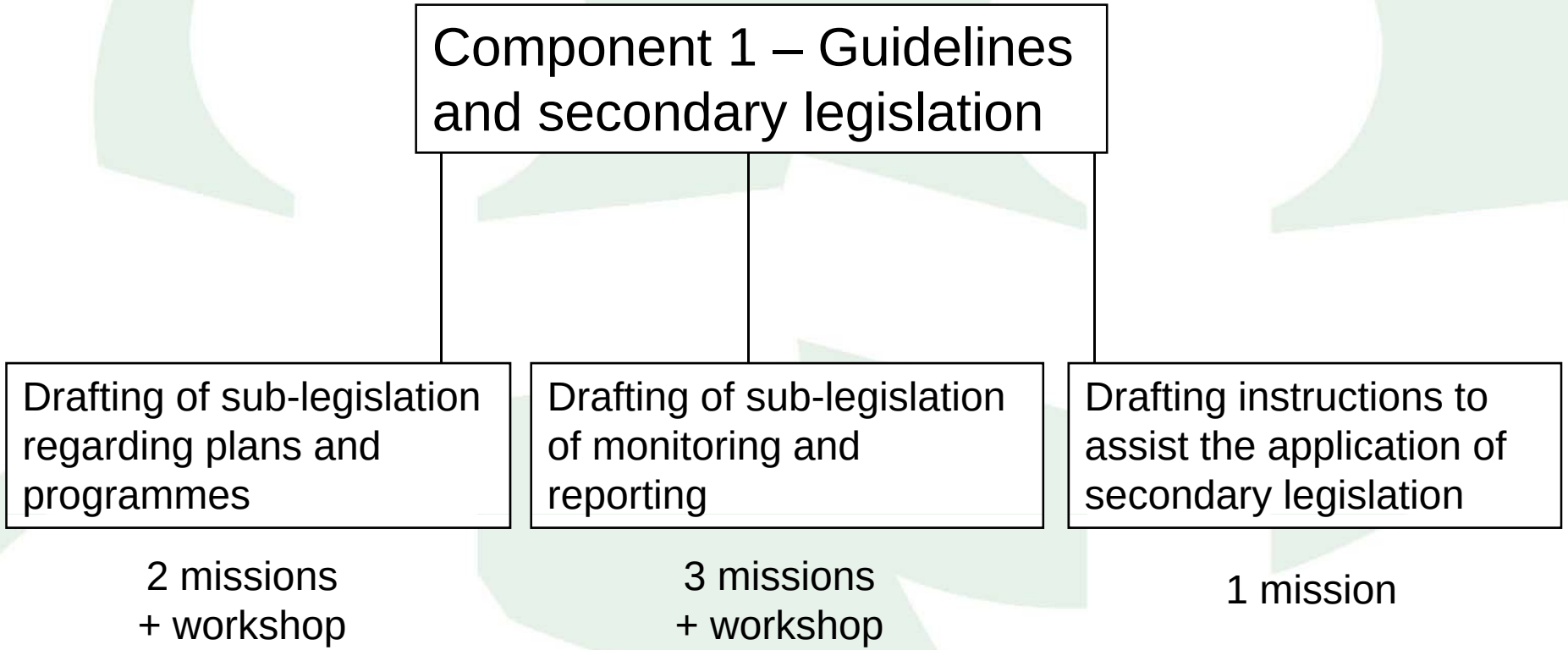
Twinning project - Air Quality Improvement

An EU-funded project managed by the European Agency for Reconstruction

Content of presentation

- Missions with participation of Austrian experts
- Results of the missions
- Recommendations

Missions of Austrian short-term experts



Results: sub-legislation of monitoring and reporting

- Rulebook on monitoring and reporting
  - Responsibilities and siting criteria for monitoring stations
  - Exchange of air quality data
  - Information of the public
  - International reporting

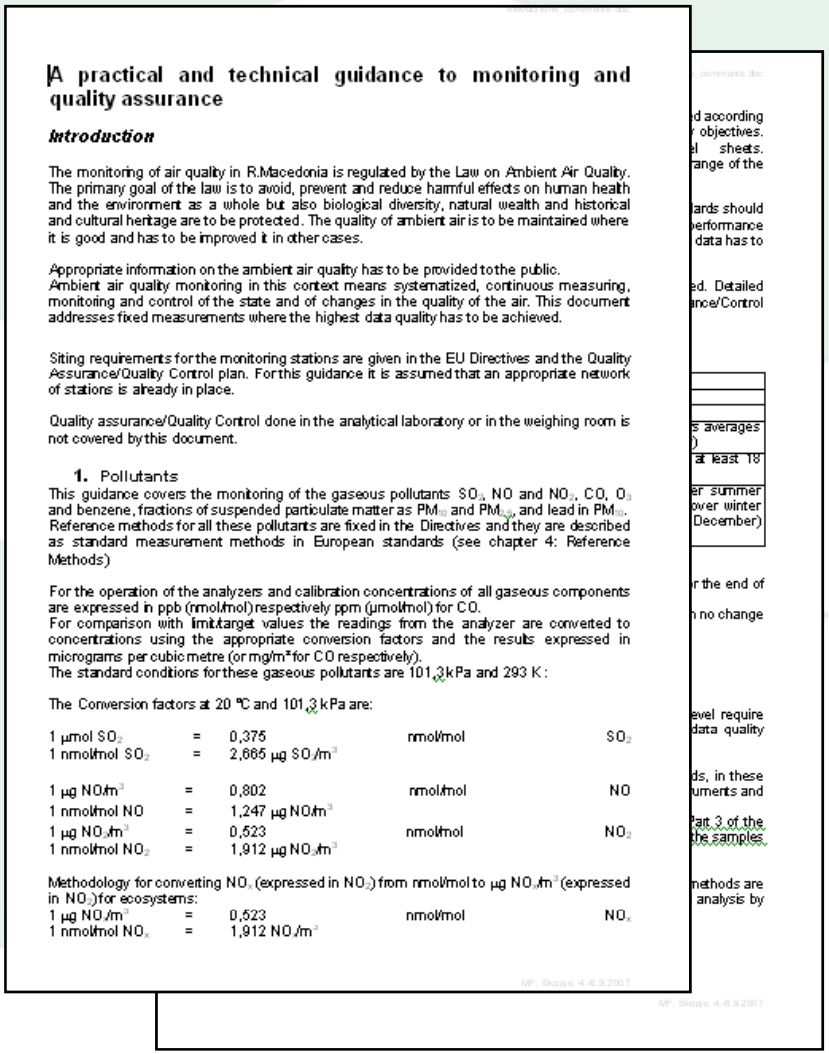
- Toolbook on monitoring and reporting
  - Practical advice, technical details

Results: Sub-legislation regarding plans and programmes

Law on ambient air quality	Rulebook	Toolbook (Guidelines)
Article 25: National plan	**Articles 2 to 9** National plan	
Article 26 Programmes **Articles 27:** Contents of the Programme	**Articles 10 to 17** Programmes	**Chapter 2: Programmes** 2.1 Introduction 2.2 Nature of pollution 2.3 Origin of pollution 2.4 Prediction of pollution 2.5 Measures 2.6 References 2.7 Summarising table
Article 27 Action plan for ambient air protection **Article 30:** Action plan for alert situations	**Articles 18 to 24** Action plans	**Chapter 3: Action plans** 3.1 Introduction 3.2 Nature of pollution 3.3 Origin of pollution 3.4 Prediction of pollution 3.5 Measures 3.6 References 3.7 Summarising table

Results: Instructions to assist the application of secondary legislation

- A „practical and technical guidance to monitoring and quality assurance“ was written
- Parts of this guidance were also used as a basis for the toolbook on monitoring and reporting



A practical and technical guidance to monitoring and quality assurance

Introduction

The monitoring of air quality in R.Macedonia is regulated by the Law on Ambient Air Quality. The primary goal of the law is to avoid, prevent and reduce harmful effects on human health and the environment as a whole but also biological diversity, natural wealth and historical and cultural heritage are to be protected. The quality of ambient air is to be maintained where it is good and has to be improved it in other cases.

Appropriate information on the ambient air quality has to be provided to the public.
Ambient air quality monitoring in this context means systematized, continuous measuring, monitoring and control of the state and of changes in the quality of the air. This document addresses fixed measurements where the highest data quality has to be achieved.

Siting requirements for the monitoring stations are given in the EU Directives and the Quality Assurance/Quality Control plan. For this guidance it is assumed that an appropriate network of stations is already in place.

Quality assurance/Quality Control done in the analytical laboratory or in the weighing room is not covered by this document.

1. Pollutants

This guidance covers the monitoring of the gaseous pollutants SO_2, NO and NO_2, CO, O_3 and benzene, fractions of suspended particulate matter as PM_{10} and $PM_{2,5}$, and lead in PM_{10}. Reference methods for all these pollutants are fixed in the Directives and they are described as standard measurement methods in European standards (see chapter 4: Reference Methods)

For the operation of the analyzers and calibration concentrations of all gaseous components are expressed in ppb (nmol/mol) respectively ppm (µmol/mol) for CO.
For comparison with limit/target values the readings from the analyzer are converted to concentrations using the appropriate conversion factors and the results expressed in micrograms per cubic metre (or mg/m³ for CO respectively).
The standard conditions for these gaseous pollutants are 101,3 kPa and 293 K:

The Conversion factors at 20 °C and 101,3 kPa are:

1 µmol SO_2	=	0,375	nmol/mol	SO_2
1 nmol/mol SO_2	=	2,665 µg SO_2/m^3		
1 µg NO/m^3	=	0,802	nmol/mol	NO
1 nmol/mol NO	=	1,247 µg NO/m^3		
1 µg NO_2/m^3	=	0,523	nmol/mol	NO_2
1 nmol/mol NO_2	=	1,912 µg NO_2/m^3		

Methodology for converting NO_x (expressed in NO_2) from nmol/mol to µg NO_2/m^3 (expressed in NO_2) for ecosystems:

1 µg NO_2/m^3	=	0,523	nmol/mol	NO_x
1 nmol/mol NO_x	=	1,912 NO_2/m^3		

Recommendations (1)

Short-term

- Software for the management of data from automated stations

Medium-term

- Ensure longer-term employment so that trained personnel will remain available

Recommendations (2)

Medium-term

- Prepare air quality programmes on a higher level:
  - Level of zones
  - Combine adjacent municipalities
  - Ensure support and cooperation between municipalities

Long-term

- Funds for maintaining the air quality monitoring network have to be available for the long term.

Conclusions from a personal point of view

- We were able to give support on air quality monitoring, reporting and planning, but a lot of work still has to be done.

  → Austria was in a similar situation earlier. It was possible to solve many problems, but we are still working on some of them.

- We had rewarding experiences in a friendly country with versatile nature and culture.

  → Thanks to everyone for their initiative and support.