

INTRODUCTION

According to the Convention on Long-range Transboundary Air Pollution (Convention) Protocol on Heavy Metals, Cooperative programme for monitoring and evaluation of the long-range transmission of air pollutants in Europe (EMEP) provides the Executive Body for the Convention with calculations of transboundary fluxes and deposition of heavy metals within the geographical scope of EMEP Assessment of transboundary air pollution of heavy metals carried out by Meteorological Synthesising Centre-East (MSC-E) involves emission and measurement data reporting by the EMEP countries and results of modelling with spatial resolution 50x50 km².

Information on pollution levels regularly produced by EMEP can be extended by an assessment performed at a country-scale level. MSC-E and the Task Force on Measurements and Modelling (TFMM) of EMEP organized a number of country-specific case studies on heavy metal pollution assessment in several individual countries (the Czech Republic, Croatia, the Netherlands and Belarus). This initiative was approved by the EMEP Steering Body [ECE/EB.AIR/GE.1.2009/2]. Country-specific case studies assume the integrated analysis of factors affecting quality of the assessment including emissions, measurements, and modelling with fine spatial resolution in individual countries as well as detailed joint analysis of pollution levels. The studies allow taking into account specific features of countries' orography, meteorological conditions, distribution of emission sources across the country and data from national monitoring programmes.

This report is focused on the evaluation of lead pollution levels in the Netherlands for 2007. The work was carried out in close cooperation with national experts from the Netherlands. The experts presented detailed national emission data with fine spatial resolution (5x5 km²) from emission source categories. In addition to the EMEP monitoring information the data from national monitoring programmes were involved in the study. Experts from MSC-E and the Netherlands jointly analyzed the obtained results.

In the *first chapter* of the report input data (emissions and measurements) provided by the Dutch national experts are described.

The *second chapter* summarizes information on pollution levels in the Netherlands prepared with fine (5x5 km²) spatial resolution. The chapter describes spatial distribution of lead total, wet and dry deposition and concentrations in air, source-receptor relationships, contribution of different emission source categories to pollution levels in the country. Besides, country-specific information is presented not only for the country as a whole, but also for its individual provinces.

The *third chapter* includes results of the evaluation of modelling results. It presents comparison of modelled and observed concentrations of lead in air and analysis of the discrepancies between them. Furthermore, application of inverse modelling aimed at refinement of wind re-suspension flux is described. Finally, comparison of modelling results with fine and coarse resolution, based on the refined re-suspension, with observations is demonstrated.

Country-specific information for the Netherlands with resolution 50x50 km², regularly prepared under EMEP, tables of source-receptor matrices for individual provinces, brief model description and short overview of preparation of input data for modelling with fine resolution are available in *Annexes*.