

Annex B.

REGULAR INFORMATION ON LEAD POLLUTION LEVELS IN THE NETHERLANDS (50X50 km²)

Country-specific information on heavy metal pollution levels is prepared annually under EMEP for each of the EMEP countries, in particular, for the Netherlands. This information is allocated in the internet [www.msceast.org] and focuses on emissions, measurements, and modelled pollution levels. In this section brief overview of the country-specific information on lead pollution levels reported annually by EMEP is exemplified by the Netherlands.

In particular, the following types of information are included:

- *Map of annual mean concentrations in air*

Over the most part of the Netherlands annual mean concentrations of lead in 2007 range from 4 to 15 ng/m³, with higher levels in the southern and lower – in the northern part of the country. The highest values exceeding 15 ng/m³ are noted for the central part of the Netherlands (Fig. B1).

- *Long-term trends of deposition to the country*

Information on long-term pollution trends for the period from 1990 to 2010 was calculated using uniform time series of emission and meteorological data. This information is presented as graph and table with values. First of all, the graph demonstrates deposition flux averaged over country's territory (Fig. B2). Besides, spatial variability of deposition fluxes is characterized by ranges between 5% lowest and 5% highest deposition values (90% interval) and between 25% highest and 25% lowest values (50% interval). Normalized flux is introduced to suppress effects of meteorological variability. For the considered period lead deposition in the Netherlands reduced around 7 times.

- *Deposition of heavy metals from the country*

Deposition from the country's sources is presented as a map of spatial distribution of deposition fluxes in the EMEP domain and as a pie chart indicating total deposition to several main regions receptors (countries or seas), and fraction of total deposition to the EMEP region as a whole (Fig.B3). As seen from the figures, in 2007 deposition from the Dutch sources to neighbouring countries ranged from 0.1 to 1 kg/km²/y (Fig. B3a). Only small fraction of lead, deposited to the EMEP region, falls to the Netherlands. Main regions-receptors are countries located nearby the Netherlands (Germany, Belgium, and France) and the North Sea (Fig. B3b). However, some fraction of deposition falls on more remote regions such as Russia or the Atlantic Ocean.

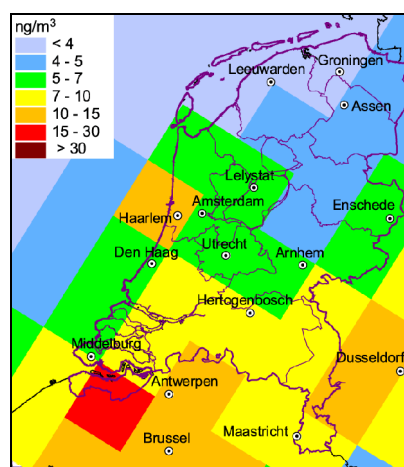


Fig. B1. Annual mean concentrations of lead in the Netherlands in 2007

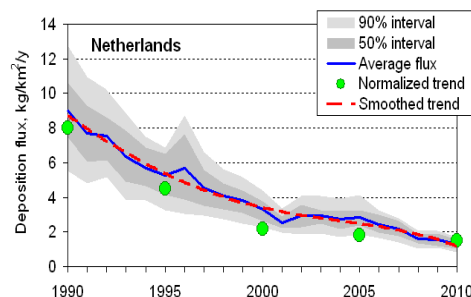


Fig. B2. Long-term trend of lead deposition in the Netherlands for 1990 – 2010 period.

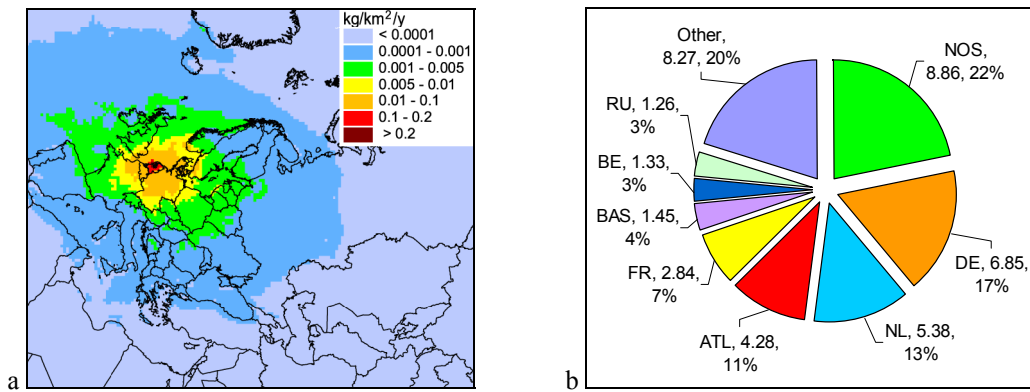


Fig. B3. Spatial distribution of lead deposition from the sources of the Netherlands (a) and total anthropogenic deposition of lead from national sources of the country in 2007 (b)

▪ *Deposition to the country*

This type of information is illustrated by map of spatial distribution of total deposition of lead to the Netherlands from all types of sources (national and foreign anthropogenic, secondary and non-EMEP) (Fig. B4a). Besides, a pie chart demonstrates main contributions of sources of the EMEP countries to anthropogenic deposition to the Netherlands. Around one third of lead deposited to the Netherlands in 2007 was originated from national sources (Fig, B4b). Three neighbouring countries – Belgium, Germany and France – are responsible for more than a half of lead deposition.

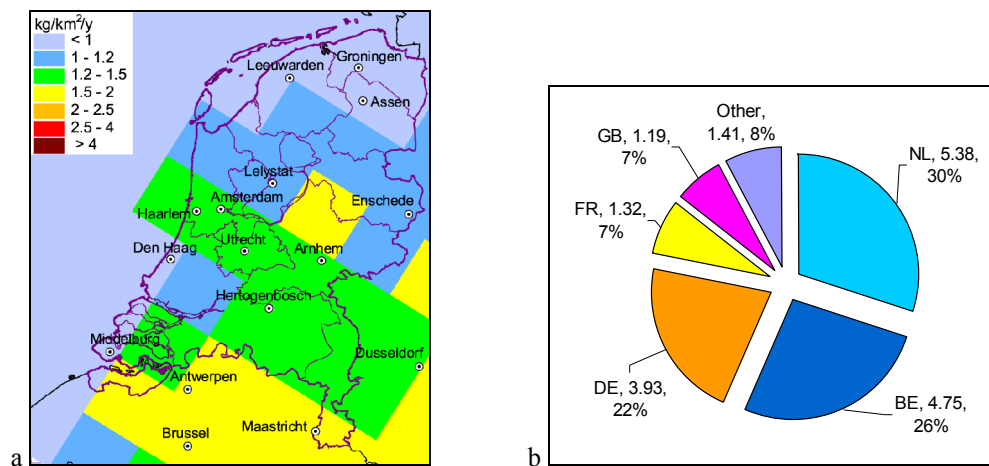


Fig. B4. Total deposition of lead in the Netherlands in 2007 (a) and contribution of countries to lead anthropogenic deposition in Netherlands in 2007 (b)

- *Contribution of foreign sources to the country's territory*

Map of contributions of foreign sources to deposition allows indicating fraction of deposition caused by foreign sources in each EMEP gridcell belonging the country. This contribution is the highest along the state borders and the lowest in gridcells which are remote from the borders or in which significant national emission sources are located (Fig. B5). In the Netherlands in 2007 the contribution in border gridcells exceed 80%, and in the central part it was less than 50%.

- *Ecosystem-dependent deposition*

Information about ecosystem-dependent deposition is important for evaluation of pollution effects for human health and biota. Deposition to 18 types of land-cover is calculated annually for each of the EMEP country. Deposition to root crops in 2007 is exemplified (Fig B6).

Regular information on heavy metal pollution levels encompasses various aspects of pollution levels assessment and disseminates among all EMEP countries. However, this information can be significantly diversified for some countries. First of all, higher spatial resolution allows revealing more details of spatial distribution of pollution levels. Besides, it becomes reasonable to present the information not only for a country as a whole, but also for its individual administrative regions.

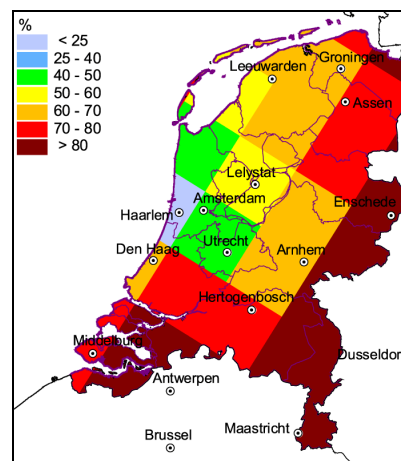


Fig. B5. Contribution of foreign sources to anthropogenic deposition of lead in the Netherlands in 2007

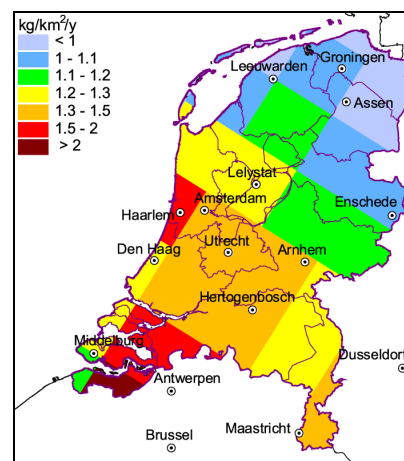


Fig. B6. Lead deposition to land cover type 'root crops' in the Netherlands in 2007