Emissions of heavy metals, surface ozone, immissions

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2 Metadata update	
2.1 Date of last update	20.03.2023

3 Statistical presentation

3.1 Data description

The data provide users with information on the annual amounts of heavy metal emissions (cadmium, mercury, arsenic, lead) released into the air from stationary sources, annual average surface ozone concentrations in selected locations. Furthermore, data on average annual concentrations of immissions of major pollutants (nitrogen dioxide, PM_{10}, lead) in selected localities and maximum values of 8-hour moving average of carbon monoxide concentration in selected localities.

3.2 Classification system

Nomenclature of Territorial Units for Statistics (NUTS)

3.3 Sector coverage

3.4 Statistical concepts and definitions

Emission is the release of a pollutant from a point source or diffuse source into the air.
Heavy metals (Hg, Pb, Cd) are metals or, in some cases, semi-metals, which are stable and have a density greater than 4.5 g/cm^3 including their compounds. Heavy metals are among the basic groups. Heavy metals include non-biodegradable microelements (e.g., Cu, Zn, Mn, Co, Cr, etc.) as well as numerous non-essential chemical elements (Cd, Pb, Hg, etc.) of contaminants. Most heavy

metals have the ability to accumulate from the air and the aquatic environment into sediments and living organisms and enter the food chain.
Ground-level ozone (in micrograms per m^3) is determined from 8-hour concentrations measured from 9:00 am. until 5:00 pm at selected monitoring stations. The target value for human health protection is 120 micrograms per m^3.
Immissions are the concentration of pollutants in ambient air in specific locality. Immissions exist in different state of matters (gases, vapours, aerosols, fly-ashes, dusts etc.) and their circulation is influenced by general circulation of the atmosphere, weather and climate conditions, relief of the area. Local air pollution is regularly monitored within the National air pollution monitoring network which is maintained by the Slovak Hydrometeorological Institute. The monitoring network was built in accordance with the rules given in EU directives.

3.5 Statistical unit

Operators of air pollution sources.

3.6 Statistical population

Operators of air pollution sources in sectors of the national economy according to the international classification NFR14 for emission inventories.

3.7 Reference area

The statistics of heavy metals emissions are available as a summary for the SR. Ground-level ozone and immission statistics are available for selected locations.

3.8 Time coverage

Heavy metal emissions statistics are available for the period 1995-2017, ground-level ozone concentrations for the period 1996-2018 and immissions of major pollutants for various periods: lead 2002-2010, nitrogen dioxide, carbon monoxide and PM_{10} at selected stations 2002-2018. There are breaks in the ground-level ozone and immission time series.

3.9 Base period

Not applicable.

4 Unit of measure

Heavy metal emissions are in tonnes per year, ground-level ozone concentrations are in micrograms per m^3, exceeding the immission limit value in %. The annual average immissions of major pollutants are in nanograms per m^3 and micrograms per m^3 respectively.

5 Reference period

The reference period is the calendar year.

6 Institutional mandate

6.1 Legal acts and other agreements

Information on heavy metal emissions is collected by the Slovak Hydrometeorological Institute (SHMI) in accordance with Act 540/2001 Coll. on State Statistics, as amended, and Regulation (EC) no. 223/2009 on European Statistics, on the basis of the requirements of Act no. 137/2010 on air (as amended by No. 318/2012 Coll., 180/2013 Coll., 350/2015 Coll., 293/2017 Coll., 194/2018 Coll.)

6.2 Data sharing

Statistical information on emissions of heavy metals is a source for fulfilling the obligations of the Slovak Republic resulting from the requirements of the European Statistical System, the requirements of international institutions and to meet the needs of the national information system. The outputs are provided to international, European and national organizations on a regular annual basis.

7 Confidentiality

7.1 Confidentiality - policy

These data are not covered by the statistical confidentiality policy.

7.2 Confidentiality - data treatment

According to Act no. 205/2004 on the collection, storage and dissemination of environmental information, informations on heavy metal emissions, ground-level ozone concentrations and immissions of major pollutants are publicly available.

8 Release policy

8.1 Release calendar

Not applicable.

8.2 Release calendar access

Not applicable.

8.3 User access

The statistical information dissemination policy is formulated in accordance with the State Statistics Act, the Statistical Office Development Strategy, the Eurostat Information Dissemination Strategy and the European Statistics Code of Practice.
The principles of publishing and providing statistical information are available on the SO SR website at:
https://slovak.statistics.sk/wps/portal/ext/services/infoservis/principles

9 Frequency of dissemination

Yearly.

10 Accessibility and clarity

10.1 News release

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10.2 Publications

Data on heavy metal emissions, ground-level ozone concentrations and immissions of major pollutants are published in the publication Environment in the Slovak Republic, which is available on the website of the SO SR
https://slovak.statistics.sk/wps/portal/ext/themes/environment/environment/publications
Statistical Yearbook of the Slovak Republic - contains data also for the area of ground-level ozone concentrations and immissions of major pollutants.
The Environment in the Slovak Republic is published according to the Catalogue of publications. The Catalogue of publications contains basic information about publications, release dates and language versions. All publications are available at the Statistical Office of the Slovak Republic. The Catalogue of publications is available on the website of the SO SR at:
https://slovak.statistics.sk/wps/portal/ext/products/publikacie/catalogue

10.3 On-line database

SO SR database: DATAcube, access at:
https://slovak.statistics.sk/wps/portal/ext/Databases

10.4 Micro-data access

Not relevant.

10.5 Other

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10.6 Documentation on methodology

Heavy metal emissions statistics are based on several methodologies:

(a) the international methodology for collecting and reporting EMEP / EEA Guidebook emissions data. The manual in English can be found on the EEA website of the EEA: https://www.eea.europa.eu/themes/air/emep-eea-air-pollutant-emission-inventory-guidebook
b) national reporting methodology for stationary air pollution sources to report electronically established data on stationary source, emissions, compliance with emission limits to the National Emission Information System (NEIS)
The manual can be found at http://www.air.sk/neis/statna_sprava.php?spirit=0f0a8a2aec4262942678fa647ef3d576

10.7 Quality documentation

SO SR internal documentation to ensure the quality of statistical outputs:
- Methodological guideline for applying mathematical-statistical methods for the statistical survey
- Methodological Instruction - Quality Indicators of Statistical Outputs and Statistical Processes
- Code of Practice for European Statistics:
https://slovak.statistics.sk/wps/portal/ext/aboutus/key.documents/code.of.practise

11 Quality management

11.1 Quality assurance

The SO SR has a quality management system in place. The Quality Manual includes a description of the quality management system and the fulfillment of ISO 9001 requirements. The application of the Manual ensures that all activities that affect the quality of the products being produced are planned, managed, reviewed, evaluated and meet the requirements accepted in the order. The Quality Guide is available at:
https://slovak.statistics.sk/wps/wcm/connect/9ca43aa4-bfaf-4101-9dae-5263aa834df7/Prirucka_kvality.pdf?MOD=AJPERES&CVID=mu8R9IM&CVID=mu8R9IM
The basis of the whole quality management system is the Code of Practice for European Statistics:
https://slovak.statistics.sk/wps/portal/ext/aboutus/key.documents/code.of.practise

11.2 Quality assessment

The quality of heavy metal emissions, ground-level ozone concentrations and immissions of major pollutants statistics is very good.

12 Relevance

12.1 User needs

The main users of data on heavy metal emissions, ground-level ozone concentrations and immissions of major pollutants are: central government authorities, research organizations, academia, researchers and students, professional associations, etc.

12.2 User satisfaction

Since 2009, the Statistical Office of the SR has been conducting customer satisfaction surveys with its products and services at two-year intervals. The aim of the surveys is to get information

about the interest and opinions of users on providing and quality of statistical products and services. The information obtained is a valuable source for the further activities of the SO SR. The result of the satisfaction survey in 2017 is available on the website of the SO SR at: https://slovak.statistics.sk/wps/portal/ext/aboutus/marketing/survey.of.satisfaction
It was not measured for heavy metal emissions, ground-level ozone concentrations and immissions of major pollutants statistics.

12.3 Completeness

100% - Data is available for all statistics required. Time series of data for individual indicators are available in the public database of the SO SR.

13 Accuracy and reliability

13.1 Overall accuracy

The overall accuracy of pollutant emission statistics is very good. The SHMI is making great efforts to prevent data errors from occurring and performs rigorous data validation to detect errors. The data provided are audited annually by the expert team of the European Environment Agency.

13.2 Sampling error

Not applicable. The survey is exhaustive, not selective.

13.3 Non-sampling error

Non-sampling errors occur in the process of entering and processing statistical data collected through the National Emission Information System (NEIS), processing statistical data obtained from the Statistical Office of the Slovak Republic and other supplementary statistical data obtained from the operators of air pollution sources. To reduce the occurrence of errors SHMI has implemented a quality management system through which the processed data are further checked and assessed. At the same time, statistics provided to international and European institutions are audited annually as part of an audit (EEA) or audit (EU).

14 Timeliness and punctuality

14.1 Timeliness

Publication of data in the public database of the SO SR is governed by an internal schedule. Heavy metal emissions data are published by the 22nd month after the reference year, ground-level ozone concentrations and immissions of major pollutants are published within 10 months after the reference year.

14.2 Punctuality

Publication deadlines are met.

15 Coherence and comparability

15.1 Comparability - geographical

Not relevant. Statistics of heavy metal emissions, ground-level ozone concentrations and immissions of major pollutants are compiled for the whole territory of the Slovak Republic.

15.2 Comparability - over time

The published data are fully comparable.

15.3 Coherence - cross domain

Not relevant.

15.4 Coherence - internal

There are no deviations, statistical outputs are internally consistent

16 Cost and burden

The SO of the SR regularly monitors the workload of reporting units. As part of the optimization of statistical surveys, it takes measures aimed at reducing their burden. The cost and workload at the level of European statistical products and its monitoring is the responsibility of the Directorate Group for Resources within Eurostat.

17 Data revision

17.1 Data revision - policy

The revision policy governs the basic rules and general procedures by which the pre-drafted data is later revised as well as applied in revisions for other reasons. The revision policy and calendar is available on the SO SR website at:
https://slovak.statistics.sk/wps/portal/ext/products/revisions

17.2 Data revision - practice

Not applicable.

18 Statistical processing

18.1 Source data

The data are obtained by exhaustive surveys from the operators of air pollution sources and supplementary statistical data are obtained electronically on the basis of the mutual cooperation agreement in the field of statistics no. DOH-1-3 / 2012-400 and direct addressing of selected operators to request data.

18.2 Frequency of data collection

Yearly.

18.3 Data collection

Electronically via the NEIS information system, via a common FTP server and via e-mail. Statistical Office of the Slovak Republic takes over data from administrative sources SHMI.

18.4 Data validation

The data are validated within the quality management system

18.5 Data compilation

The survey is exhaustive. The collected data are summarized by individual classifications.

18.6 Adjustment

The data collected is not adjusted

19 Comment