

STATUS OF AIR EMISSION REPORTING UNDER THE AIR CONVENTION IN ARMENIA 2022 TO 2024



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EU4Environment
Water and Data in Eastern Partner Countries

STATUS OF AIR EMISSION REPORTING UNDER THE AIR CONVENTION IN ARMENIA

**REGIONAL REPORT ON OUTPUT 2.3, ACTIVITY 2.3.3 FURTHER
IMPROVING NATIONAL AIR QUALITY POLLUTANT EMISSION
INVENTORIES**



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EU⁴Environment
Water and Data in Eastern Partner Countries

EU4Environment in Eastern Partner Countries:
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ABOUT THIS REPORT

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ABOUT EU4ENVIRONMENT – WATER RESOURCES AND ENVIRONMENTAL DATA

This Programme aims at improving people's wellbeing in EU's Eastern Partner Countries and enabling their green transformation in line with the European Green Deal and the Sustainable Development Goals (SDGs). The programme's activities are clustered around two specific objectives: 1) support a more sustainable use of water resources and 2) improve the use of sound environmental data and their availability for policy-makers and citizens. It ensures continuity of the Shared Environmental Information System Phase II and the EU Water Initiative Plus for Eastern Partnership programmes.

The Programme is implemented by five Partner organisations: Environment Agency Austria (UBA), Austrian Development Agency (ADA), International Office for Water (OiEau) (France), Organisation for Economic Co-operation and Development (OECD), United Nations Economic Commission for Europe (UNECE). The action is co-funded by the European Union, the Austrian Development Cooperation and the French Artois-Picardie Water Agency based on a budget of EUR 12,75 million (EUR 12 million EU contribution). The implementation period is 2021-2024.

<https://eu4waterdata.eu>

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List of abbreviations

ADA.....	Austrian Development Agency
BQE	Biological Quality Elements
DoA.....	Description of Action
DG NEAR.....	Directorate-General for Neighbourhood and Enlargement Negotiations of the European Commission
EaP	Eastern Partners
EC.....	European Commission
EECCA	Eastern Europe, the Caucasus and Central Asia
EMBLAS.....	Environmental Monitoring in the Black Sea
EPIRB.....	Environmental Protection of International River Basins
ESCS	Ecological Status Classification Systems
EU	European Union
EUWI+.....	European Union Water Initiative Plus
GEF.....	Global Environmental Fund
ICPDR	International Commission for the Protection of the Danube River
INBO.....	International Network of Basin Organisations
IOW/OIEau	International Office for Water, France
IWRM	Integrated Water Resources Management
NESB	National Executive Steering Board
NFP	National Focal Point
NGOs.....	Non-Governmental Organisations
NPD	National Policy Dialogue
OECD.....	Organisation for Economic Cooperation and Development
RBD	River Basin District
RBMP	River Basin Management Plan
Reps	Representatives (the local project staff in each country)
ROM.....	Result Oriented Monitoring
ToR.....	Terms of References
UBA.....	Umweltbundesamt GmbH, Environment Agency Austria
UNDP	United Nations Development Programme
UNECE.....	United Nations Economic Commission for Europe
WFD	Water Framework Directive

Country Specific Abbreviations Armenia

EMIC Environmental Monitoring and Information Centre (until January 2020)

HMC..... Hydrogeological Monitoring Centre (since February 2020)

MNP..... Ministry of Nature Protection

SCWS..... State Committee on Water Systems

SWCIS..... State Water Cadastre Information System of Armenia

WRMA Water Resources Management Agency

Executive Summary

The objective of this report is to document the 2022, 2023 and 2024 status of air emission inventories submitted under the Air Convention (Convention on Long Range Transboundary Air Pollution) by Armenia and to document the steps taken by the EU4Env project to accompany Armenia in air emission inventory reporting in 2023 and 2024. Armenia has submitted an air emission inventory under the Air Convention in 2022 with a slight delay and in time in 2023 and 2024. Armenia did not report full time series but only the latest year.

To further improve the air emission inventory the following points could be addressed:

- Report full time series
- Report projected emissions regularly
- Report Activity Data
- Improve the transparency of the Informative Inventory Report by including more detailed description of the methodology
- Explain fluctuations in the time series in the Informative Inventory Report

An Armenian expert participated in the in-depth review of air emission inventories submitted under the Air Convention (CLRTAP stage 3 review) in 2023 and 2024. The centralised review meetings in Vienna in May 2023 and June 2024 were also used to discuss issues related to the Armenian inventory with the Armenian experts.

1. Purpose

The purpose of this report is

1. to document the 2022 status of air emission inventories submitted under the Air Convention (CLRTAP, Convention on Long Range Transboundary Air Pollution) in Armenia. This status can be seen as the baseline.
2. to document the steps taken to accompany Armenia in air emission inventory reporting in 2023 and 2024, as well as to document the status of 2023 and 2024 reporting of air emission inventories. In a last step areas for further improvement are identified.

2. Air emissions inventories submitted by Armenia

2.1. Background on Reporting Requirements under the Air Convention

Article 8 of 1979 LRTAP Convention (Air Convention)¹ states that: *"The Contracting Parties, within the framework of the Executive Body referred to in article 10 and bilaterally, shall, in their common interests, exchange available information on: data on emissions at periods of time to be agreed upon, of agreed air pollutants, starting with sulphur dioxide, coming from grid-units of agreed size; or on the fluxes of agreed air pollutants, starting with sulphur dioxide, across national borders, at distances and at periods of time to be agreed upon..."*

EB Decision 2022/2 (UNECE, 2022 (a))² further specifies the pollutants (Annex I (b)):

"The air pollutants referred to in article 8 (a) of the Convention shall be emissions of: sulfur oxides (SO_x), nitrogen oxides (NO_x), ammonia (NH₃), non-methane volatile organic compounds (NMVOCs), carbon monoxide (CO), particulate matter (referring in particular to PM_{2.5} and PM₁₀ and, if a Party considers it appropriate, total suspended particulate matter (TSP) and black carbon (BC)), heavy metals (in particular, cadmium (Cd), lead (Pb), mercury (Hg) and, if a Party considers it appropriate, arsenic (As), chromium (Cr), copper (Cu), nickel (Ni), selenium (Se) and zinc (Zn)) and persistent organic pollutants (in particular, hexachlorobenzene (HCB), polychlorinated biphenyls (PCBs), dioxins and furans (PCDD/F) and polycyclic aromatic hydrocarbons (PAHs)), using as guidance the definitions given in the Guidelines;"

All pollutants mentioned in EB Decision 2022/2 have to be reported, unless the information is not available or the EB Decision lists them as "if a Party considers it appropriate".

Also in the UNECE reporting Guidelines Parties to the Air Convention are formally required to report on the substances and for the years set forth in the Air Convention and the protocols and their amendments that they have ratified and that have entered into force for them (UNECE Reporting Guidelines, UNECE, 2022 (b))³.

¹ UNECE 1979: The 1979 Geneva Convention on Long-range Transboundary Air Pollution. United Nations Economic Commission for Europe; available at <http://www.unece.org/fileadmin//DAM/env/lrtap/full%20text/1979.CLRTAP.e.pdf>

² UNECE 2022 (a); ECE/EB.AIR/150, Decision 2022/2 Reporting of emissions and projections data under the Convention and its protocols in force; available at https://unece.org/sites/default/files/2023-03/Decision%202022_2%20%28E%29.pdf

³ UNECE 2022: Guidelines for Reporting Emissions and Projections Data under the Convention on Longrange Transboundary Air Pollution. United Nations Economic Commission for Europe 23 / 27

The core guidance documents for reporting air emission inventories under the Air Convention are the UNECE Reporting Guidelines (UNECE, 2022(b))⁴ and the EMEP/EEA Inventory Guidebook⁵. Summary information on reporting can be found at <https://www.ceip.at/reporting-instructions>.

Armenia has accepted the following Protocols: 1984 EMEP Protocol.

Table 1 Ratification status of the LRTAP Convention and related protocols for the beneficiary countries of the EU4Environment and data project

Ratification status of the LRTAP Convention and related protocols													
	1979 LRTAP Con- vention	1984 EMEP Protoc ol	1985 Sulphu r Protoc ol	1988 NO _x Protoc ol	1991 VOC Protoc ol	1994 Sulphu r Protoc ol	1998 Heavy Metals Protocol		1998 POP Protocol			1999 Gothenburg Protocol	
	Geneva Conventio n	Geneva Protoc ol	Helsink i Protoc ol	Sofia Protoc ol	Geneva Protoc ol	Oslo Protoc ol	Aarhus Protoc ol	2012 Amend -ment	Aarhus Protoc ol	2009 Amend -ment I	2009 Amend -ment II		2012 Amend -ment
Armenia	1997 ^(AC)	2014 ^(AC)	N	N	N	N	N	N	N	N	N	N	N
Azerbaijan	2002 ^(AC)	N	N	N	N	N	N	N	N	N	N	N	N
Georgia	1999 ^(AC)	2013 ^(AC)	N	N	N	N	N	N	N	N	N	N	N
Moldova	1995 ^(AC)	2016 ^(AC)	N	N	N	N	2002	N	2002	N	N	N	N
Ukraine	1980	1985 ^(AT)	1986 ^(AT)	1989 ^(AT)	N	N	N	N	N	N	N	N	N

Note: ^(AC) = Accession; ^(AT) = Acceptance

(ECE/EB.AIR/GE.1/2022/20– ECE/EB.AIR/WG.1/2022/13). https://unece.org/sites/default/files/2022-08/ECE_EB.AIR_GE.1_2022_20-2210473E.pdf

⁴ available at:

https://www.ceip.at/fileadmin/inhalte/ceip/00_pdf_other/2022/emissions_reporting_guidelines_2023_final.pdf

⁵ <https://www.eea.europa.eu/publications/emep-eea-guidebook-2023>

2.2. Status of reporting air emission inventory data in 2022

Armenia has submitted an air emission inventory under the Air Convention in 2022 almost in time. Armenia uses the current NFR – reporting template⁶ which is seen as good practise. In 2022 Armenia only reported data for the year 2020.

Para 33 of the UNECE Reporting Guidelines (UNECE, 2022(b)) states “...A complete time series, including the base or reference year and all other years for which emissions and projections are to be reported, should be calculated using the same methodologies throughout the time series to ensure that the inventory reflects real changes in emissions rather than changes in methodologies. Recalculations should be made if there are changes in methodologies or changes in the manner in which emission factors and activity data are obtained or used, or if estimates are provided for sources that have existed since the reference year but that were not accounted for in previous submissions. Parties should apply any recalculations to every relevant year in the full time series to ensure consistency across years.”

Though the requirement of reporting full time series is phrased using the softer word “should” and not “shall” almost all Parties report full time series. The reporting of full and consistent time series greatly improves the usability of the data within the work of the Air Convention.

The air emission inventory data is accompanied by a report that describes the methodologies used to calculate the air emissions. This report is called Informative Inventory Report. Armenia has submitted an Informative Inventory Report in 2022, but almost two months after the reporting deadline.

In 2022 Armenia reported all emission inventory data for all pollutants that are listed in the reporting template. Armenia did not include activity data in the reporting template. Reporting of activity data helps with the interpretation of the emission data and fosters the review activities.

Armenia did not report projected emission data, gridded emission data or LPS in 2022 or before.

2.3. Status of reporting air emission inventory data in 2023

Armenia has submitted an air emission inventory under the Air Convention in 2023 in time. In 2023 Armenia only reported data for the year 2021.

⁶ NFR – Nomenclature for Reporting. The NFR template is available under <https://www.ceip.at/reporting-instructions/annexes-to-the-2023-reporting-guidelines>

Armenia has submitted an Informative Inventory Report in 2023, two weeks after the reporting deadline, which is an improvement compared to 2022. The content of the Informative Inventory Report has also improved. The report is more detailed and contains a more detailed key category analysis. However, the report is still rather short and transparency needs to be improved.

In 2023, Armenia reported all emission inventory data for all pollutants that are listed in the reporting template. Armenia did not include activity data in the reporting template.

Armenia did not report projected emission data, gridded emission data or LPS in 2023 or before.

2.4. Status of reporting air emission inventory data in 2024

Armenia has submitted an air emission inventory under the Air Convention in 2024 in time. In 2024 Armenia only reported data for the year 2022.

Armenia has submitted an Informative Inventory Report in 2024, six days before the reporting deadline, which is an improvement compared to 2023 and 2022.

In 2024, Armenia reported all emission inventory data for all pollutants that are listed in the reporting template. Armenia did not include activity data in the reporting template.

Armenia did not report projected emission data, gridded emission data or LPS in 2024 or before

2.5. The following activities were carried out during the project period:

1. The status of reporting was assessed in 2022
2. A meeting with Armenian experts was held on 1 June 2022 to discuss areas for improvement, gather the Armenian views on the issue and to draft ideas for possible support.
3. The sectors industry and transport were identified as priority areas for inventory support during and after this meeting
4. Ad hoc exchange was offered for the reporting of air emission inventories in 2023 and 2024.
5. An Armenian expert participated in the in-depth review of air emission inventories submitted under the Air Convention (CLRTAP stage 3 review) in 2023 and 2024. The centralised review meeting in Vienna in May 2023 and June 2024 were also used to discuss issues related to the Armenian inventory with the Armenian experts. Technical corrections are improved emission calculations carried out by the expert review team during the centralised review. Technical corrections can be used as a starting point for the preparation of the next inventory submission (inventories are submitted annually). Technical corrections were calculated for

Armenia for several pollutants related to manure management, animal manure applied to soils and urine and dung deposited by grazing animals. In 2024 two technical corrections were calculated and discussed for NMVOC emissions from 2D3d Coating applications and 5A Biological treatment of waste – Solid waste disposal on land. These two technical corrections were accepted by Armenia and it is planned that they are submitted as part of an improved submission in 2025. More details of the review are documented in the workshop report “Participation in CLRTAP in-depth review 2023” and “Participation in CLRTAP in-depth review 2024”.

2.6. The following results were achieved:

1. The status of reporting in 2022 was documented (present report)
2. Areas for inventory improvement were identified (see section 2.7)
3. The status of reporting in 2023 was documented
4. The Armenian Informative Inventory Report showed improvements as compared to the version submitted in 2022.
5. The Armenian Informative Inventory Report was submitted much earlier in 2023 compared to 2022.
6. The Armenian Informative Inventory Report was submitted before the reporting deadline in 2024.
7. The Armenian Inventory Team is informed about an improved calculation of emissions related to manure management, animal manure applied to soils and urine and dung deposited by grazing animals
8. The Armenian Inventory Team is informed about an improved calculation of emissions related to manure management, animal manure applied to soils and urine and dung deposited by grazing animals
9. The Armenian Inventory Team is informed about an improved calculation method of NMVOC emissions related to 2D3d Coating applications and 5A Biological treatment of waste – Solid waste disposal on land.

2.7. General suggestions for improvement of the air emission inventory

1. Report full time series
2. Report activity data
3. Report projected emissions
4. Report gridded data and LPS data
5. Improve the transparency of the IIR by including more detailed description of the methodology
6. Use higher tier (more complex) methods for the calculation of key categories
7. Implement more plausibility and quality checks

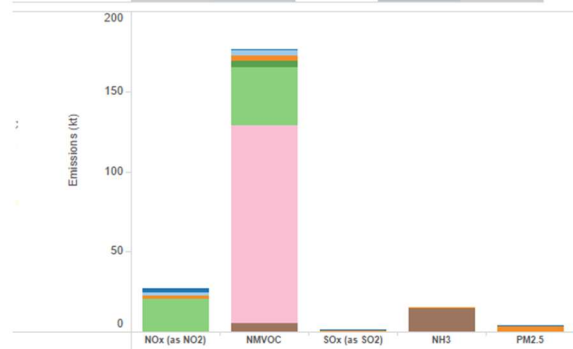
3. Annexes

Overview of air emission reporting of Armenia in 2022, 2023 and 2024.

Inventory submission (initial)		Years reported		IIR pages	
Date 2022	23.02.2022	2022	2020	2022	23
Date 2023	15.02.2023	2023	2021	2023	29
Date 2024	07.02.2024	2024	2022	2024	29

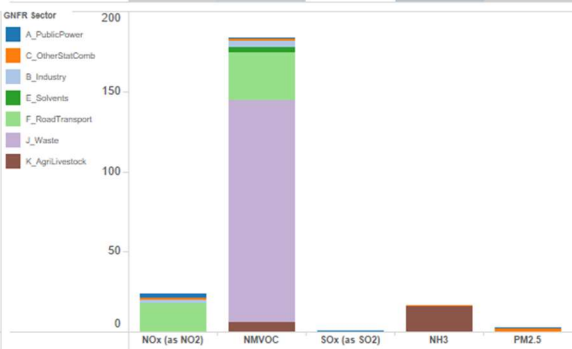
2024 Submission / Armenia / 2022 data

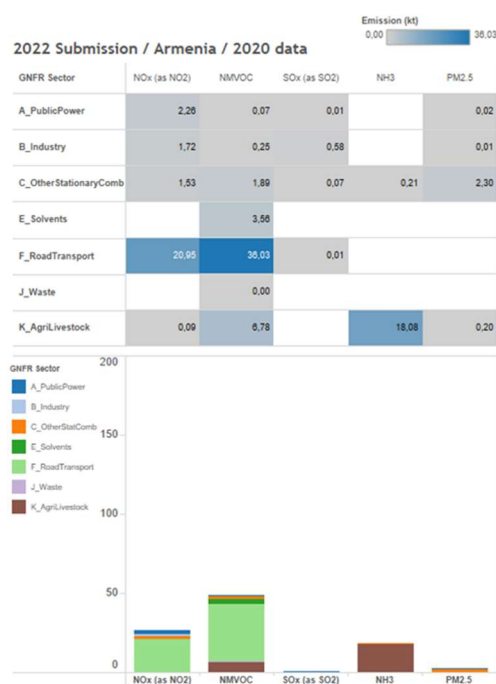
GNFR Sector	NOx (as NO2)	NM VOC	SOx (as SO2)	NH3	PM2.5
A_PublicPower	2.8	0.1	0.0		0.0
B_Industry	2.0	4.1	1.1		0.0
C_OtherStatComb	1.9	3.3	0.5	0.4	3.9
E_Solvents		3.8			
F_RoadTransport	20.8	38.5	0.0		
J_Waste		123.4			0.0
K_AgriLivestock	0.1	5.5		14.9	0.2



2023 Submission / Armenia / 2021 data

GNFR Sector	NOx (as NO2)	NM VOC	SOx (as SO2)	NH3	PM2.5
A_PublicPower	2.8	0.1	0.0		0.0
B_Industry	1.8	3.9	0.8		0.0
C_OtherStatComb	1.5	2.1	0.1	0.2	2.8
E_Solvents		3.8			
F_RoadTransport	17.8	29.7	0.0		
J_Waste		138.4			0.0
K_AgriLivestock	0.1	6.0		16.0	0.2





The Armenian Air emission inventories 2022, 2023 and 2024 are available at:

<https://www.ceip.at/status-of-reporting-and-review-results>

The stage 1 and stage 2 reports compiled by CEIP provide feedback on the air emission inventories to the countries.

Stage 1: An initial check of submissions for timeliness and completeness;

Stage 2: A synthesis and assessment of all national submissions with respect to consistency and comparability of data with recommendations for data quality improvement;

The reports are available at:

<https://www.ceip.at/status-of-reporting-and-review-results>

The stage 3 report 2023 and 2024 provide specific recommendations for the improvement of reporting air emissions from the sector agriculture and Industrial Processes and Product Use - Solvents

The reports are available at:

<https://www.ceip.at/status-of-reporting-and-review-results>



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