



STATUS OF AIR EMISSION REPORTING UNDER THE AIR CONVENTION IN UKRAINE

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



**Funded by
the European Union**

EU⁴Environment
Water and Data in Eastern Partner Countries

EU4Environment in Eastern Partner Countries:
Water Resources and Environmental Data (ENI/2021/425-550)

ABOUT THIS REPORT

AUTHORS

SABINE, Schindlbacher, Federal Environment Agency (UBA)

OSCAR, Redeyoff, Federal Environment Agency (UBA)

BERNHARD, Ullrich, Federal Environment Agency (UBA)

DISCLAIMER

This document was produced with the financial support of the European Union and written by the partners of the EU4Environment – Water and Data consortium. The views expressed herein can in no way be taken to reflect the official opinion of the European Union or the Governments of the Eastern Partnership Countries. This document and any map included herein are without prejudice to the status of, or sovereignty over, any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.

IMPRINT

Owner and Editor: EU4Environment-Water and Data Consortium

Umweltbundesamt GmbH

Spittelauer Lände 5

1090 Vienna, Austria

Office International de l'Eau (IOW)

21/23 rue de Madrid

75008 Paris, FRANCE

Reproduction is authorized provided the source is acknowledged.

May 2025

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>

CONTENTS

LIST OF ABBREVIATIONS	6
KEY MESSAGES	8
EXECUTIVE SUMMARY	8
1. PURPOSE	FEHLER! TEXTMARKE NICHT DEFINIERT.
2. AIR EMISSIONS INVENTORIES UKRAINE	9
2.1. BACKGROUND ON REPORTING REQUIREMENTS UNDER THE AIR CONVENTION	9
2.2. STATUS OF REPORTING AIR EMISSION INVENTORY DATA IN 2022	10
2.3. STATUS OF REPORTING AIR EMISSION INVENTORY DATA IN 2023	11
2.4. STATUS OF REPORTING AIR EMISSION INVENTORY DATA IN 2024	12
2.5. THE FOLLOWING ACTIVITIES WERE CARRIED OUT DURING THE PROJECT PERIOD:	12
2.6. THE FOLLOWING RESULTS WERE ACHIEVED:	12
2.7. GENERAL SUGGESTIONS FOR IMPROVEMENT OF THE AIR EMISSION INVENTORY	12
3. ANNEXES	13

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 Ukraine

MENR.....	Ministry of Ecology and Natural Resources
NAAU	National Accreditation Agency of Ukraine
SAWR	State Agency of Water Resources
SEMS.....	State Environment Monitoring System
UkrHMC	Ukrainian Hydrometeorological Center

Key messages

- Ukraine has submitted an air emission inventory under the Air Convention in 2023 and 2024 in time. In 2023 and 2024 Ukraine reported emission data for the whole time series 1990 to 2021. This is good practice and a considerable improvement as compared to the reporting in previous years.
- General suggestions for improvement of the air emission inventory
 - Report projected emissions regularly
 - 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

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 Ukraine and to document the steps taken by the EU4Env project to accompany Ukraine in air emission inventory reporting in 2023 and 2024. Ukraine has submitted an air emission inventory under the Air Convention in 2023 and 2024 in time. In 2023 and 2024 Ukraine reported emission data for the whole time series 1990 to 2021. This is good practice and a considerable improvement as compared to the reporting in previous years. To further improve the air emission inventory the following points could be addressed:

- 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

1. Purpose

The objectives of the activities described in this reports are

1. to document the 2022 status of air emission inventories submitted under the Air Convention (CLRTAP, Convention on Long Range Transboundary Air Pollution) by Ukraine. This status can be seen as the baseline.
2. to document the steps taken to accompany Ukraine 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 Ukraine

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 (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

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>.

Ukraine has accepted the following Protocols: 1984 EMEP Protocol, 1985 Sulphur Protocol and the 1988 NO_x 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 Convention	1984 EMEP Protocol	1985 Sulphur Protocol	1988 NO _x Protocol	1991 VOC Protocol	1994 Sulphur Protocol	1998 Heavy Metals Protocol		1998 POP Protocol			1999 Gothenburg Protocol	
	Geneva Convention	Geneva Protocol	Helsinki Protocol	Sofia Protocol	Geneva Protocol	Oslo Protocol	Aarhus Protocol	2012 Amendment	Aarhus Protocol	2009 Amendment I	2009 Amendment II	2012 Amendment	
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

2.2. Status of reporting air emission inventory data in 2022

Ukraine has submitted an air emission inventory under the Air Convention in 2022 in time. The submission was in the current reporting format which is good practice. In 2022 Ukraine reported emission data only for the year 2020.

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>

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

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. Ukraine has submitted an Informative Inventory Report in 2022 in time. The Informative Inventory Report in 2022 contained important information already, however the methods used to calculate emissions were not described transparently enough.

2022 was not a reporting year for gridded data, LPS data or projections. Ukraine 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

Ukraine has submitted an air emission inventory under the Air Convention in 2023 in time. In 2023 Ukraine reported emission data for the whole time series 1990 to 2021. This is good practice and a considerable improvement as compared to the reporting in the previous year.

Ukraine has submitted an Informative Inventory Report in 2023 in time. The Informative Inventory Report considerably increased in length and detail. Though the Informative Inventory Report contains a lot of information already, the methods used to calculate emissions are not described transparently enough.

As in the previous year, in 2023 Ukraine reported all emission inventory data for all pollutants that are listed in the reporting template and but no activity data.

2023 was not a reporting year for gridded data and LPS data. 2023 was a reporting year for projections. Ukraine did not report projected emission data in 2023.

2.4. Status of reporting air emission inventory data in 2024

Ukraine has submitted an air emission inventory under the Air Convention in 2024 in time. In 2024 Ukraine reported emission data for the whole time series 1990 to 2022. This is good practice.

Ukraine has submitted an Informative Inventory Report in 2024 in time. Though the Informative Inventory Report contains a lot of information already, the methods used to calculate emissions are described transparently enough.

As in the previous year, in 2024 Ukraine reported all emission inventory data for all pollutants that are listed in the reporting template and but no activity data.

2024 was not a reporting year for gridded data and LPS data.

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

1. The status of reporting was assessed in 2022, 2023 and 2024.
2. Areas for improvement of the Air emission inventories were discussed with Ukrainian experts but capacity building action on air emission inventories was not seen as priority by UA.
3. Experts from Ukraine were invited to the in-depth review of air emission inventories submitted under the Air Convention (CLRTAP stage 3 review) in 2023 and 2024. No expert was nominated by UA to participate in the review.

2.6. The following results were achieved:

1. The status of reporting in 2022, 2023 and 2024 was documented (present report)
2. Areas for inventory improvement were identified (see section 2.7)
3. Suggestions for the Improvements of the Ukrainian air emission inventory and the Informative Inventory Report were discussed with Ukrainian experts in several ad hoc on-line meetings
4. The Ukrainian Informative Inventory Report contained much more detail in 2023 compared to 2022.
5. The inventory contained a full time series in 2023 (compared to only the year 2020 in 2022 reporting).

2.7. General suggestions for improvement of the air emission inventory

- 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

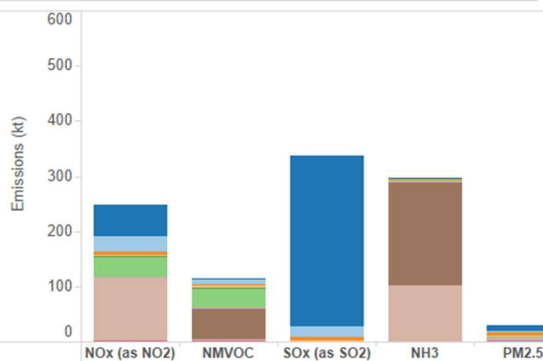
3. Annexes

Overview of reporting of Ukraine in 2022, 2023 and 2024.

Inventory submission (initial)		Years reported		IIR pages	
Date 2022	14.02.2022	2022	2020	2022	144
Date 2023	14.02.2023	2023	1990-2021	2023	398
Date 2024	12.02.2024	2024	1990-2022	2024	407

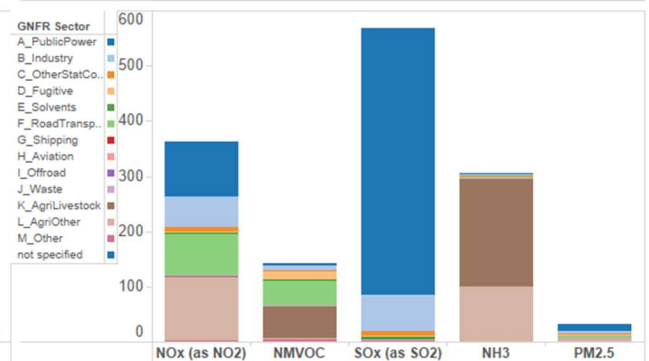
2024 Submission / Ukraine / 2022 data

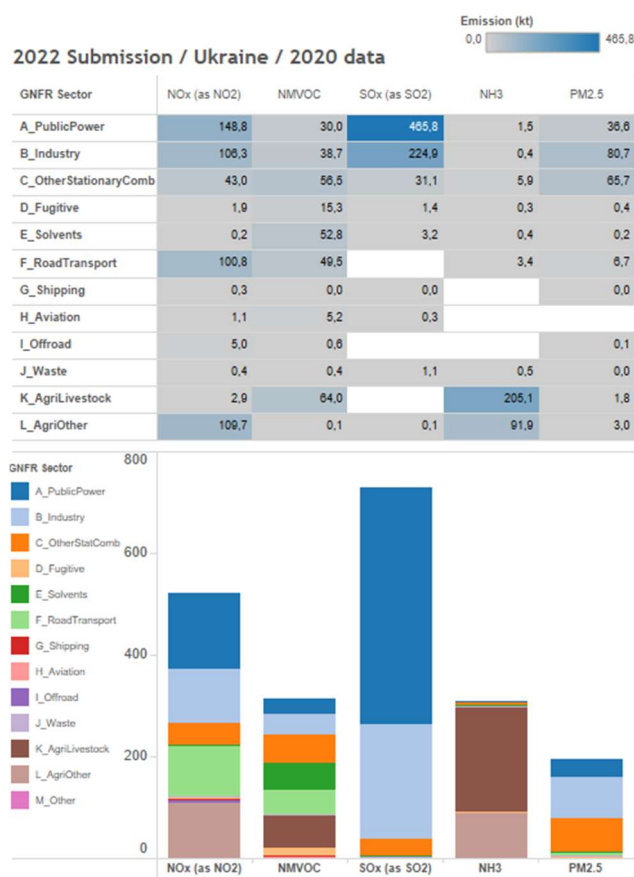
GNFR Sector	NOx (as NO ₂)	NM VOC	SOx (as SO ₂)	NH ₃	PM _{2.5}
A_PublicPower	57,6	2,9	309,9	0,0	9,6
B_Industry	27,7	7,0	19,3	0,9	2,4
C_OtherStatComb	6,5	1,3	4,9	0,1	5,5
D_Fugitive	1,4	6,3	0,6	0,1	0,3
E_Solvents	0,2	1,2	1,0	0,3	0,1
F_RoadTransport	38,2	35,5		5,3	4,7
J_Waste	0,4	0,3	0,2	0,4	0,0
K_AgriLivestock	3,1	56,4	0,1	186,9	2,5
L_AgriOther	112,4	0,1	0,1	102,0	2,8
M_Other	1,3	3,9	0,8	0,2	1,2



2023 Submission / Ukraine / 2021 data

GNFR Sector	NOx (as NO ₂)	NM VOC	SOx (as SO ₂)	NH ₃	PM _{2.5}
A_PublicPower	99,2	3,5	483,1	0,0	12,7
B_Industry	55,0	9,4	66,6	2,9	4,1
C_OtherStatComb	8,5	1,5	8,9	0,4	2,1
D_Fugitive	1,3	15,5	1,1	0,3	0,4
E_Solvents	0,4	2,4	3,5	0,6	0,2
F_RoadTransport	76,7	43,1		3,0	5,6
J_Waste	0,4	0,5	0,9	0,5	0,0
K_AgriLivestock	3,3	60,1	0,1	198,0	2,9
L_AgriOther	113,9	0,1	0,1	98,7	3,1
M_Other	3,1	6,0	3,8	0,2	1,0





The Air emission inventories 2022 to 2024 of Ukraine 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 provides specific recommendations for the improvement of reporting air emissions from the sector agriculture

The stage 3 report 2023 provides specific recommendations for the improvement of reporting air emissions from the sector industrial processes and product use - solvents

The reports are available at:

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



Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

www.eu4waterdata.eu

Implementing partners



Co-funded by

With funding from

