

# Statistics of emissions of pollutants in atmospheric air, formation and use (neutralization) of production and consumption waste (including toxic)

Metadata

National Bureau of Statistics of the Republic of Moldova (NBS)

## 1. Contact Information

### 1.1. Responsible subdivision within NBS

**Agriculture and Environment Statistics Division**

Environment Statistics Service

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## 2. Metadata Update

### 2.1. Last certification of metadata

03.02.2022

### 2.2. Last update of metadata

03.02.2022

## 3. Statistical Presentation

### 3.1. General description

Data on atmospheric air protection and the waste generation and use offer the possibility of correlation and structuring of information by type of economic activity, ownership form, at country level and in territorial aspect, being the important source of information necessary for the assessment of the state of the environment, elaboration of environment policies, monitoring and evaluation of their achievement.

Emissions of pollutants into atmospheric air present a greater risk to the environment and to the health of the population. Evidence and generalization of data in this area aims at presenting the current situation of air quality and allows adoption of decisions in the field of air protection, impact minimization and health protection.

*Survey of economic entities on emissions of pollutants in atmospheric air* is exhaustive and includes all entities that have stationary sources of air pollution, regardless of whether they are equipped with purifying equipment or not.

The emissions of air pollutants in atmospheric air from stationary sources of economic entities covers data on:

- the volume of polluting substances generated at the enterprise in the process of activity by types of substances,
- volume of pollutants evacuated by type of substances,
- the volume of polluting substances captured by the treatment plants and neutralized by type of

substances,

- the normative established for the evacuation of polluting substances in the reporting year,
- evacuation of specific pollutants,
- the number of stationary sources of polluting substances, of which organized and not organized,
- carrying out activities to reduce the volume of emissions of polluting substances into the atmospheric air, such as the improvement of technological processes, the installation of gas purification devices and dust collection, the elimination of pollution sources, etc.

The information source for report completing regarding emissions of polluting substances in the atmospheric air from stationary sources is the primary data from the enterprises presented according to the standard forms: "Registry for evidence of stationary sources of pollution and their characteristics", "Register for evidence of the execution of the actions regarding atmospheric air protection" and "Register for evidence of the operation of air purification and dust collection facilities".

**Survey of economic agencies on the generation and use of waste (including toxic)** is exhaustive and covers all economic agents in the production process of which wastes are generated, stored, used (neutralized) or delivered. Evidence of the generation and movement of any kind of wastes in the country is used for organizing of adequate waste management and minimize the impact on the environment and human health.

This area covers the data on:

- the name of the waste,
- the existence of waste at the beginning of the year,
- waste generation during the year of activity,
- the use of waste,
- the volume of waste received or transferred to other enterprises ,
- waste removed (neutralized) or dumped,
- the area occupied by waste on accumulators at the balance of the enterprise,
- expenditure on the storage, removal and disposal of waste,
- toxicity class, chemical composition, aggregation status (for toxic waste).

The information sources for report completing regarding the generation, use (neutralization) of waste are the accounting records: receipts of incomes and expenditures, materials lifting, waste shipment, border sheets for storage operations, documents on the transport of waste from the enterprise, etc. In the absence of primary evidence, as an exception, it is admissible to complete the form based on the calculations (estimates).

## 3.2. Concepts and definitions

### 3.2.1. Definitions

**Air** - unique mixture of gases (nitrogen and oxygen, small amounts of argon, neon, helium, krypton, xenon, radon, carbon dioxide, hydrogen, water vapor and various particles) of major vital importance in which can live alive organisms, the most mobile component of the environment, undefined by boundaries and which, as a result of its mass movement, spreads the consequences of anthropogenic influence at unpredictable distances.

**Pollutant** - any solid, liquid, gaseous (vapor) or energy (radiant, electromagnetic, ionizing, thermal, acoustic or vibrational) present in the air, which may have negative effects on human health and / or the environment.

The main pollutants highlighted are:

- Solid substances,
- Liquid and gaseous substances:

- carbon dioxide,
- sulfur dioxide,
- nitrogen oxide,
- hydrocarbons,
- volatile organic compounds and others.

The main specific substances are:

- Aromatic polycyclic hydrocarbons,
- Metals and their compounds,
- Persistent organic pollutants,
- Sulfuric acid and others.

**Emission of pollutants into the atmosphere** is the evacuation in atmospheric air of polluting substances from stationary and mobile sources. All pollutants emitted into atmospheric air are taken into account as they pass through dust and gas capture facilities from organized pollution sources, so without treatment from organized and non-organized pollution sources.

**Emission limit admissible (ELA)** - is evacuation of pollutant, determined by calculating the dispersion in the atmospheric air from the ground emission source or group of sources that do not exceed the air quality norms provided for the population, the animal and plant world.

**Emission of pollutants provisionally coordinated (EPC)** - is the evacuation of polluting substances which, being evacuated and dispersed from the ground emission source or group of sources, exceeds air quality norms and for which it is foreseen to ELA volume, emission reduction measures plan;

**Stationary source of atmospheric air pollution** - is an immobile technological unit, which in the process of operation eliminates polluting substances in the atmosphere.

**Purification of gases** - removal of polluting substances from the gas mixture content when evacuated from sources of atmospheric air pollution by means of special devices, installations and equipment.

**The amount of polluting substances captured (neutralized)** includes all types of pollutants captured (neutralized) in the dust collecting (gas purification) installations from the total volume of pollutants emitted by stationary sources.

**Waste** - substances, materials, objects, scraps of raw materials from economic activities, domestic activities that have lost all or part of the initial value, some of which are reusable after processing.

**Waste storage** - waste disposal in authorized and specially organized places (polygons, landfills, underground areas) for burial or temporary storage for possible further processing and use.

**Waste processing** - performing of some technological operations (dismantling, cutting, pressing, briquetting, grinding, melting, casting, fermenting etc.), which modify the composition and physical, chemical or biological properties of waste for the purpose of transforming them into secondary raw materials.

**Use of waste** - reintroduction in the economic circle of waste as secondary raw materials or use after processing as semi-finished products or energy.

### 3.2.2. Unit of measure

Emissions of pollutants into atmospheric air are expressed in tones.

The amount of production and consumption waste and toxic waste is expressed in tones (except for mercury lamps - in kilograms).

### 3.2.3. Computation formula

In the absence of primary evidence at the economic agent, it is admissible to complete the form based on the calculations (estimates).

### 3.3. Used classifications

- 1. Classifier of Activities in Moldova Economy** (CAEM - Clasificatorul Activităților Economice a Moldovei in Romanian), harmonized with NACE ver.1, approved via Moldova-Standard Decision no. 694-ST dated 09.02.2000, including the modification no. 1 approved via Decision no. 1444-ST dated 04.01. 2004; in force since 01.02.2004; edition 2005. Starting with the data for 2015, the survey results are classified according to the Classification of Economic Activities of Moldova, Rev.2 (CAEM Rev.2), harmonized with NACE ver.2, approved by the Decision of the College of the National Bureau of Statistics no. 20 from 29.12.2009. In force from 01.01.2014.
- 2. Classifier of Ownership Forms in the Republic of Moldova** (CFP - Clasificatorul formelor de proprietate din Republica Moldova, in Romanian): approved via the Decision of the Standards, Metrology, and Technical Supervision Department No. 276-st dated 04.02.1997;
- 3. Classifier of Organizational-Legal Forms** (CFOJ – Clasificatorul formelor organizatorico-juridice din Republica Moldova in Romanian), approved via the Moldova-Standard Decision No. 1607-ST dated 09.11.2004, in force since 01.01.2005
- 4. Classifier of Administrative-Territorial Units of the Republic of Moldova** (CUATM - Clasificatorul unităților administrativ-teritoriale al Republicii Moldova in Romanian), approved via the Moldova-Standard Decision No. 1398-ST dated 03.09.2003; in force since 03.09.2003.
- 5. Statistical Classification of Waste:** The data are grouped according to the Statistical Classification of Waste (SCWM) approved by the decision of the collegial council of the Statistics Department no.21 from 26.11.1996.
- 6. Toxic waste classification:** The data are grouped according to the Toxic Waste Classifier approved by the Order of the Ministry of Health no.92 of 02.07.1992.

### 3.4. Scope

#### 3.4.1. Sector coverage

- All economic entities that have stationary atmospheric air pollution sources, from all areas of social and economic activity, regardless of the form of ownership,
- All economic agents in the production process of which they form, store, use (neutralize) or deliver waste (including toxic) from all areas of social and economic activity, regardless of the form of ownership.

#### 3.4.2. Statistical population

Economic entities.

#### 3.4.3. Geographical coverage

Data are collected for the entire country, except for the localities from the left side of the River Nistru and Bender municipality.

#### 3.4.4. Time coverage

Time series are available starting with 1993.

### 3.5. Disaggregation level

**The final data on the emissions of air polluting substances from the stationary sources** of the economic entities are elaborated and presented on:

- total country;
- development regions (Chisinau, North, Central, South, ATU Gagauzia);
- rayons;
- types of economic activity;
- forms of ownership;

Emission data are broken down by main groups of substances:

- solid;
- gaseous and liquid:
  - carbon dioxide,
  - sulfur dioxide,
  - nitrogen oxide,
  - hydrocarbs,
  - volatile organic compounds,
  - other substances;
- specific pollutants:
  - aromatic polycyclic hydrocarbons,
  - metals and their compounds,
  - Persistent organic pollutants,
  - ammonia,
  - acids,
  - soot,
  - chlorine,
  - other substances;

Data on stationary sources of polluting substances are presented as follows:

- total number,
  - of them organized,
- treatment plants.

Aggregate data on the generation, use (neutralization) of wastes (including toxic) are elaborated and presented on:

- total country;
- economic development regions (Chisinau, North, Central, South, ATU Gagauzia);
- rayons;
- types of economic activity;
- forms of ownership;
- types of waste,
- toxicity class (toxic waste).

### 3.6. Dissemination frequency

Annually.

### 3.7. Timeliness

- 1) The primary reports on atmospheric air protection are submitted by the economic entities to the territorial organ of the Environment Protection Inspectorate by February 25 after the reporting year.

The Environment Protection Inspectorate presents the primary reports to the territorial statistical bodies on March 25.

Presentation of final data to beneficiaries - July 20.

- 2) Primary reports on the generation, use (neutralization) of waste (including toxic) until 2020 were submitted by the economic agents to the territorial organ of the Environment Protection Inspectorate by April 1<sup>st</sup> after the reporting year.

The Environment Protection Inspectorate presented the primary reports to the territorial statistical bodies on April 16.

Presentation of final data to beneficiaries was July 20.

Starting with 2021, the information on waste management is elaborated by the Environment Agency, the data collection is carried out through the Automated Information System "Waste Management".

### 3.8. Revision

Data are final.

### 3.9. Period of reference

The period of reference is the *calendar year (from January 01 until December 31)*.

## 4. Data Collection and Processing

### 4.1. Data source

#### 4.1.1. Statistical surveys

The report on atmospheric air protection shall be filled on the basis of the primary records, organized at the entities in accordance with the standard forms POD-1 "Register of stationary pollution sources and their characteristics" and POD-2 "Register for the performance of actions for the protection of atmospheric air" and POD 3 "Register for the operation of air purification and dust collection facilities". The report reflects the data from stationary pollution sources that characterize the amount of substances captured, used and emitted, as well as other indices.

Primary reports on the generation, use (neutralization) of waste (including toxic) are completed on the basis of the incomes and expenses documents: incomes and expenses, documents on material lifting, documents on the delivery of waste from the company, as well as on the basis of the passport for waste accumulated and used at the enterprise. In the absence of primary evidence, as an exception, it is allowed to complete the form based on the calculations (estimates).

#### 4.1.2. Administrative sources

The primary data from the reports No.1-air "Atmospheric air protection" No.1-toxic waste "Formation, use and neutralization of toxic waste" and No.2 "Waste formation and use" are administrative of the Ministry of Environment.

#### 4.1.3. Estimations

Estimates to fill the primary report by the economic agent are permitted in the absence of primary evidence.

### 4.2. Characteristics of the statistical survey/administrative sources

#### 4.2.1. Objective and background

##### Survey "Atmospheric air protection" (Form No.1-air)

Survey objective: obtaining data about the volume of emissions of polluting substances in atmospheric air, as well as the volume of polluting substances captured and used during a year to inform the large public, decision-making, national and international reporting.

The main indicators resulted: emissions of air polluting substances into air by type of pollutants, volume of pollutants captured and used, number of organized and non-organized stationary sources of air pollution, activities to reduce pollutant emissions.

Periodicity: once a year.

How to collect data: through the submission of primary reports by economic entities.

Type of research: exhaustive.

Presentation criteria: enterprises and organizations irrespective of the type of economic activity and property. Number of units surveyed in 2021 - 4018. Disaggregation level of disseminated data: by country and territorial profile: by development regions and districts; by types of economic activity; by types of property and types of polluting substances.

Reporting has existed since the 1980s and is updated annually.

##### The survey "Generation, use and neutralization of toxic waste" (Form No.1 - toxic waste) and "Formation, use of waste" (form No.2 - waste)

Survey objective: obtaining data on the volume of waste (including toxic) generated, used (neutralized), delivered (including export) within a year to inform the large public, make decisions, nationally and internationally reports.

The main resulting indicators: the amount of waste (including toxic) generated, used (neutralized),

delivered (including export), amount existent at the end of the year.

Periodicity: once a year.

How to collect data: through the submission of primary reports by economic agents.

Type of survey: exhaustive.

Presentation criteria: enterprises and organizations irrespective of the type of economic activity and property. Number of units surveyed in 2020 - 3932 (toxic waste - 952). Level of disaggregation of disseminated data: by country and territorial profile: by development regions and rayons; by types of economic activity; by types of property and types of polluting substances.

Reporting has existed since the 1990s and is updated annually.

#### **4.2.2. Statistical unit**

The observation unit is:

- the economic entity that as a result of its activity evacuates polluting substances in the atmospheric air (form 1-air),
- economic agents that in the production process of which waste (including toxic) is generated, stored, used (neutralized) or delivered.

#### **4.2.3. Circle of units covered in the survey**

The circle of units covered in profile by surveys is presented in p. 4.2.1.

#### **4.2.4. Survey frequency**

Annual.

#### **4.2.5. Data collection**

Data are collected through self-registration.

### **4.3. Processing and compilation of data**

#### **4.3.1. Data validation**

The first stage of data validation is carried out by the specialists of the Environment Protection Inspectorate.

The second stage of validation is carried out by the specialists of the territorial statistical bodies.

The data are checked and analyzed for their quality, in particular, their internal, temporal and other data coherence.

With the using of the processing program application, verification of compliance data is ensured of the entire set of control conditions:

- the logical links in the reports;
- report data.

The terms of logical control at the report level are aimed at: tracking and verifying logical paths / flows of reports; respecting correlations between tables, correct encoding of reports.

The integrity checking conditions aim at correlating and verifying the data in the reports.

#### **4.3.2. Compilation/extrapolation of data**

Data are compiled based on the centralization of information obtained within the surveys.

#### **4.3.3. Adjustments**

No adjustments are made.

#### **4.3.4. Quality assurance**

The quality of statistical data is assured by observing the Fundamental Principles of Official Statistics adopted by the UN General Assembly on 29 January 2014, as well as those set forth in the national Law



on Official Statistics no. 93 of 26 May 2017.

In activity of producing information pay huge importance to ensuring high quality of data. In this scope, a number of measures for quality assurance are carried out at every stage of the statistical process: organization of surveys, data collection, processing, and elaboration of generalized information.

Errors, inconsistencies, and suspicious data are revealed for verification and correction.

The primary data are verified and analyzed from internal coherence point of view (within the questionnaire), temporal coherence (with data from previous periods), with data of other similar units and administrative data sources.

#### **4.4. Data accuracy**

##### **4.4.1. Non-response rate**

Usually, the rate of non-response is insignificant and does not influence the outcome of the survey as a whole.

##### **4.4.2. Sampling errors**

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## **5. Comparability and Coherence**

### **5.1. International comparability**

1. In the field of atmospheric air protection - the information is comparable, but not all substances are included.
2. In the area of generation, use (neutralization) of waste (including toxic) are used obsolete classifiers, which do not correspond to the European List of Waste.

### **5.2. Comparability over the time**

Data are comparable over the time.

### **5.3. Coherence with other statistics**

It was not done.

## **6. Institutional Mandate (normative-legal basis)**

The NBS activity is based on respecting the Republic of Moldova Constitution, the Law on Official Statistics No. 93 dated 26.05.2017, other legislative and normative acts, NBS management decisions and orders.

The Law on Official Statistics regulates the organization and operation of the unique system of official statistics, establishing the general principles for collecting, processing, centralizing, diminishing, and stocking statistical information (art.1).

Art. 5 of the Law provides that the production of statistical information is based on respecting the following principles: impartiality, objectiveness, relevance, transparency, confidentiality, cost-efficiency etc.

Being the central statistical body, the National Bureau of Statistics is an administrative authority created under the Government for leading and coordinating the activity in the statistics area.

In accordance with Government Decision 935 of 24.09.2018 on the organization and operation of the NBS, the Bureau exercises the following tasks:

- 1) Coordinates the national statistical system on the development and production of official statistics;
- 2) Elaborates and implements strategies for the development of the national statistical system, annual and multiannual statistical programs;
- 3) Elaborates the normative and institutional framework necessary for the achievement of the strategic objectives in its field of activity, as well as the mechanisms for their implementation in practice;
- 4) Performs the management and control of the achievement in quality conditions of the programs and statistical plans adopted at central and regional level;



- 5) Harmonizes and aligns national statistical indicators, methodologies, methods and techniques with international regulations and standards;
- 6) Promotes the statistical culture in the society.

The legislative and normative acts ruling the activity of the NBS are available on its official page [www.statistica.gov.md](http://www.statistica.gov.md), under About NBS (<http://www.statistica.gov.md/pageview.php?l=en&idc=323&>)

## 7. Confidentiality

### 7.1. Principles

According to art. 19 of the Law on Official Statistics No. 93 dated 26.05.2017, producers of official statistics shall take all regulatory, administrative, technical and organizational measures to protect confidential data and prevent their disclosure.

Chapter VII of the above-mentioned law stipulates that the data collected, processed and stored for the production of statistical information are confidential if they allow the direct or indirect identification of the respondents. ) The following shall not be considered confidential:

- a) data that can be obtained from publicly accessible sources according to the legislation;
- b) individual data on address, telephone, name, type of activity, number of employees of legal entities and individual entrepreneurs;
- c) data referring to public enterprises, institutions and organizations funded from the budget, submitted at the request of the public administration authorities.

According to the Law on Official Statistics, art. 20, access to confidential information is granted to the persons who, according to their official functions, participate in the production of statistical information shall have access to individual data in so far as individual data are necessary for producing this information.

The same article stipulates that the access to individual data, which do not allow the direct identification of respondents, may be given for scientific survey projects, whose expected results do not refer to identifiable individual units, under the regulation approved by the central statistical authority.

Art. 23 (5) of the Law stipulates that the the statistical information cannot be disseminated to users if it refers to 1-3 statistical units.

### 7.2. Practical assurance of the confidentiality rules

To ensure the protection of confidential statistical data in compliance with the Law on Official Statistics No. 93 dated 26.05.2017, the National Bureau of Statistics undertakes all the regulatory, administrative, technical, and organizational measures to protect the confidential statistical information and prevent its disclosure.

In compliance with the above-mentioned law, the employees of producers of official statistics, including temporary employees who, according to their official functions, have direct access to individual data shall be obliged to observe the confidentiality of these data during and after termination of employment.

Before being disseminated, the statistical data are verified if they meet the protection requirements set for confidential data. If the statistical data contain confidential information (see p. 7.1), they are not disseminated, but aggregated at the minimum available level which ensures the protection of data confidentiality.

## 8. Access to Information and Dissemination Format

### 8.1. Access to information

#### 8.1.1. Calendar of statistical publications

Annually the Advance release calendar is developed by NBS.

#### 8.1.2. Access to the calendar of statistical publications

The Advance release calendar is posted on the NBS official page [www.statistica.gov.md](http://www.statistica.gov.md).

#### 8.1.3. Access to statistical data

According to the Law on Official Statistics No. 93 dated 26.05.2017, art. 23:

- a) Producers of official statistics shall be obliged to disseminate the statistical information within the deadlines specified in the programme of statistical works and in the press-release calendar.
- b) The dissemination of statistical information laid down in the programme of statistical works to all categories of users shall be made free of charge and under equal access conditions in terms of volume, quality and time of dissemination

The program of statistical work may be accessed on the web page [www.statistica.gov.md](http://www.statistica.gov.md), under About NBS / legislative and normative acts (<http://www.statistica.gov.md/pageview.php?l=en&idc=323&>)

The NBS web page [www.statistica.gov.md](http://www.statistica.gov.md) represents the most important information source for ensuring users' access to different statistical information and transparency about the NBS activity.

All information, time series, as well as the statistical publications developed by NBS are placed on its official web page.

## 8.2. Dissemination format

### 8.2.1. Operative information / Analytical notes

Not applicable.

### 8.2.2. Publications

Publications developed by NBS containing statistical data on environment:

- Statistical Yearbook of the Republic of Moldova;
- Territorial Statistics;
- Statistical pocket-book "Moldova in Figures";
- The collection "Natural resources and the environment in the Republic of Moldova".

Access to publications:

- in electronic format, on the official website of NBS [www.statistica.gov.md](http://www.statistica.gov.md), rubric Products and Services / Publications

<http://www.statistica.gov.md/pageview.php?l=en&idc=350&nod=1&>

- on paper - in the NBS library (more details at

<http://www.statistica.gov.md/libview.php?l=en&idc=340&id=2400>

- or can be purchased at the NBS office (more details at [www.statistica.gov.md](http://www.statistica.gov.md), Publications section

<http://www.statistica.gov.md/pageview.php?l=en&idc=350&id=2219>

### 8.2.3. Databases/time series

- **Statistical databank** <http://statbank.statistica.gov.md>, domain Environment / Atmospheric air protection or Waste

- NBS **official page:** <http://www.statistica.gov.md> in the following domains:

- *Statistics by themes / Environment*
- *Products and Services / Publications / Environment*

### 8.2.4. Questionnaires/data sent upon request from international organizations

International questionnaires UNSD, UN ECE, UNEP, Eurostat, CIS, etc.

### 8.2.5. Requests for additional data

The NBS also provides additional statistical information to those available in the statistical publications placed on the official web site within the limits of the available information, in accordance with the Law on official statistics. The request can be sent personally to the NBS headquarters by post, e-mail [moldstat@statistica.gov.md](mailto:moldstat@statistica.gov.md) or online - [www.statistica.gov.md](http://www.statistica.gov.md) rubric Products and Services / Statistical data request [http://www.statistica.gov.md/solicitare\\_informatii\\_statistice.php?l=en](http://www.statistica.gov.md/solicitare_informatii_statistice.php?l=en)

## 9. Useful References (links)

### 9.1. Accessibility of documentation on methodology

The methodology is available on the official page [www.statistica.gov.md](http://www.statistica.gov.md), under Metadata

<http://www.statistica.gov.md/pageview.php?l=en&idc=430&>.

## **9.2. Accessibility of documentation on Evaluation Reports**

The NBS assessment reports are available on the official page [www.statistica.gov.md](http://www.statistica.gov.md), rubric About NBS / Assessments and Opinions on NBS / Assessment Reports (<http://www.statistica.gov.md/pageview.php?l=en&idc=399&id=2739>).

## **9.3. Accessibility of information on user surveys**

User surveys are available on the official page [www.statistica.gov.md](http://www.statistica.gov.md), rubric About NBS / Assessments and Opinions on NBS / User Surveys (<http://www.statistica.gov.md/pageview.php?l=en&idc=399&id=2740>).

## **9.4. Other useful references**

- <http://www.unece.org/env/lrtap/welcome.html>
- <http://www.emep.int>
- <http://www.ipcc-nggip.iges.or.jp/public/gl/invs4.htm>
- <http://unstats.un.org/unsd/environment/>
- [www.un.org/esa/sustdev/natlinfo/indicators/isd.htm](http://www.un.org/esa/sustdev/natlinfo/indicators/isd.htm)
- <http://www.basel.int/>
- <http://themes.eea.eu.int/IMS/CSI>
- <http://waste.eionet.eu.int/>
- <http://www.etc-waste.int/>
- <http://europa.eu>