

Nitrate in groundwater (sdg_06_40)

ESMS Indicator Profile (ESMS-IP)
Compiling agency: Eurostat, the statistical
office of the European Union

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Eurostat Quality Profile	
4.5. Source data	EEA (Waterbase database)
5.1. Frequency of dissemination	Every year
5.2. Timeliness	T+2 years
6.1. Reference area	< 75% EU MS or no EU aggregate
6.2. Comparability - geographical	< 75% EU MS
6.3. Coverage - Time	> 10 years
6.4. Comparability - over time	> 4 data points

Description of Eurostat quality grading system under the following [link](#).

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1. Contact		Top
1.1. Contact organisation	Eurostat, the statistical office of the European Union	
1.2. Contact organisation unit	E2: Environmental statistics and accounts; sustainable development	
1.5. Contact mail address	e-mail contact : ESTAT-SDG-MONITORING@ec.europa.eu	

2. Metadata update		Top
2.1. Metadata last certified	29/04/2024	
2.2. Metadata last posted	02/05/2024	
2.3. Metadata last update	02/05/2024	

3. Relevance		Top
<p>The indicator is part of the EU Sustainable Development Goals (SDG) indicator set. It is used to monitor progress towards SDG 6 on clean water and sanitation and SDG 2 on ending hunger and malnutrition; which are embedded in the European Commission's Priorities under the 'European Green Deal'.</p> <p>Among other things, SDG 6 calls for ensuring universal access to safe and affordable drinking water, sanitation and hygiene, and ending open defecation. It also aims at improving water quality and water-use efficiency and encouraging sustainable abstractions and supply of freshwater. SDG 2 seeks to end hunger and malnutrition, and ensure access to safe, nutritious and sufficient food.</p> <p>This indicator can be considered as part of the global SDG indicator 6.3.2 "Proportion of bodies of water with good ambient water quality".</p> <p>Protection of water resources, water ecosystems and of drinking and bathing water is at the cornerstone of EU environmental policy. EU water policy provides a framework to comprehensively address water protection and for achieving good status for inland surface waters, transitional waters, coastal waters and groundwater. According to the Drinking Water Directive, a maximum concentration of 50 mg/L of nitrate in groundwater that is used for drinking water is allowed. The Nitrates Directive requires the designation of vulnerable zones based on this threshold for all waters including groundwater.</p> <p>The Water Framework Directive is the main European legislation aiming to prevent water pollution. The EU Biodiversity Strategy for 2030 supports the implementation of the Water Framework Directive's objective by requiring Member States to restore freshwater ecosystems.</p> <p>The 8th Environment Action Programme sets the environmental policy agenda for the years from 2021 to 2030 and explicitly mentions water-related issues in two of its six priority objectives. These two objectives are: (1) pursuing a zero-pollution ambition for a toxic free-environment, including for air, water and soil and protecting the health and well-being of citizens from environment-related risks and impacts; and (2) protecting, preserving and restoring biodiversity and enhancing natural capital, notably air, water, soil, and forest, freshwater, wetland and marine ecosystems.</p>		

4. Statistical Indicator		Top
4.1. Data description		
<p>This indicator refers to concentrations of nitrate (NO₃) in groundwater measured as milligrams per litre (mg NO₃/L). Data are taken from well samples and aggregated to annual average concentrations for groundwater bodies in Europe.</p>		

Nitrate can persist in groundwater for a long time and accumulate at a high level through inputs from anthropogenic sources (mainly agriculture). The EU drinking water standard is limited to 50 mg NO₃/L to avoid threats to human health. The distribution of measured groundwater bodies might mask exceedance of nitrate levels in certain polluted areas (see details on accuracy under point 4.4).

For time series analyses, only complete series after inter/extrapolation are used. As measuring stations change over time, this leads to a recalculation of the whole time series with each update. Complete series 2000 – 2021 are based on a total of 1025 groundwater wells (967 within 18 EU Member States). These measuring stations are distributed over the following countries (number of groundwater bodies in parentheses): Belgium (37), Bulgaria (40), Czechia (64), Denmark (4), Germany (176), Estonia (18), Ireland (66), Spain (25), France (452), Italy (10), Cyprus (6), Latvia (11), Malta (2), Austria (16), Portugal (10), Slovenia (6), Slovakia (16), Finland (8), Switzerland (37) and Serbia (21).

The aggregate for EU_V includes data for 18 EU Member States (Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Spain, France, Italy, Cyprus, Latvia, Malta, Austria, Portugal, Slovenia, Slovakia and Finland).

4.2. Unit of measure

mg NO₃ per litre.

4.3. Reference Period

Calendar year.

4.4. Accuracy - overall

Indicator from non-ESS source. For assessment of accuracy please refer to the original source (see link to external data source and metadata in section “Annexes”).

The indicator is relative robust in presenting the overall trend and spatial variation in water quality, however, the distribution of monitoring sites might not be representative within the countries. A mean density of at least one monitoring site per 1 000 km² is only achieved in Belgium and Malta; in all other countries, there is less than one monitoring site per 1 000 km². In Denmark, Spain, Italy and Finland the number of monitoring sites is particularly low (more than 10 000 km² per monitoring site).

4.5. Source data

EEA (Waterbase database)

Data source: EEA Waterbase database on Water Quality ICM

Data provider: European Environment Agency (EEA)

5. Frequency and Timeliness of dissemination [Top](#)

5.1. Frequency of dissemination

Every year

The indicator is updated annually.

5.2. Timeliness

T+2 years

6. Coverage and comparability [Top](#)

6.1. Reference area

< 75% EU MS or no EU aggregate

Data are presented for the EU Member States Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Spain, France, Italy, Cyprus, Latvia, Malta, Austria, Portugal, Slovenia, Slovakia and Finland; plus Switzerland and Serbia.

6.2. Comparability - geographical

< 75% EU MS

The data for the reporting countries are only comparable within the limits of the weighting of the different number of samples per country. See also overall accuracy under point 4.4.

6.3. Coverage - Time

> 10 years

Presented time series starts in 2000.

6.4. Comparability - over time

> 4 data points

Length of comparable time series without methodological break is longer than 4 data points.

7. Accessibility and clarity

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7.1. Dissemination format - Publications

Analysis of indicator is presented in Eurostat's annual monitoring report on Sustainable development in the EU (progress towards SDGs in an EU context).

7.2. Dissemination format - online database

See table [sdg_06_40](#)

7.3. Dissemination format - other

Eurostat dedicated section on SDGs: <http://ec.europa.eu/eurostat/web/sdi/overview>

8. Comment

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