

## Water management - EU regulations

EU regulations require member states to accomplish the regulation, by transposing the Directives in national laws.

**General reference:** [https://ec.europa.eu/environment/water/index\\_en.htm](https://ec.europa.eu/environment/water/index_en.htm)

**Topic:** Drinking water

**References - Regulation:** Drinking Water Directive - 98/83/EC

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31998L0083>

**References - Comments/Explanations:**

[https://ec.europa.eu/environment/water/water-drink/legislation\\_en.html](https://ec.europa.eu/environment/water/water-drink/legislation_en.html)

**Comments:** The Drinking Water Directive concerns the quality of water intended for human consumption (tap water). Quality standards follow the WHO guidelines: see Article 4, Article 5; quality standards of the parameters are listed in Annex 1. This directive requires Member States to ensure regular monitoring actions (Article 7) as well as remedial actions in case that quality parameters are not satisfactory (Article 8).

**Topic:** Drinking water

**References - Regulation:** revised Drinking Water Directive (2020/2184)

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020L2184>

**References - Comments/Explanations:** recast of Directive 98/83/EC

[https://ec.europa.eu/environment/water/water-drink/review\\_en.html](https://ec.europa.eu/environment/water/water-drink/review_en.html)

**Comments:** The revised Drinking Water Directive is really new: it was approved by the EU Council in December 2020 and entered in force on 12 January 2021. Key points are: a) reinforced water quality standards (more stringent than WHO recommendations); b) Tackling emerging pollutants (e.g., endocrine disruptors, PFA's, microplastics); c) ensure better access to water, particularly for vulnerable and marginalised groups; d) promote tap water, including in public spaces and restaurants, to reduce (plastic) bottle consumption. Another aspect regards the formal introduction of "Water Safety Plan Manual" and a risk-based approach, which allows the water supplier to adapt monitoring to the main risks and to take the necessary measures before the exceeding of the pollutants thresholds (art. 15).

More information are available at:

[https://ec.europa.eu/environment/water/water-drink/review\\_en.html](https://ec.europa.eu/environment/water/water-drink/review_en.html)

**Topic:** Bottled waters

**References - Regulation:** DIRECTIVE 2009/54/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the exploitation and marketing of natural mineral waters  
<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0054>

**Comments:** European law for bottled mineral water. It describes the procedures for the exploitation and bottling activity of groundwater. In this law, the mandatory information required a priori for groundwater exploitation are listed.

In addition, the treatments which could be applied or forbidden on bottled waters are listed.

**Topic:** Water scarcity, drought

**References - Regulation:**

- Communication from the Commission to the European Parliament and the Council - Addressing the challenge of water scarcity and droughts in the European Union  
<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52007DC0414>
- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Report on the Review of the European Water Scarcity and Droughts Policy  
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012DC0672>

**References - Comments/Explanations:**

- [https://ec.europa.eu/environment/water/quantity/scarcity\\_en.htm](https://ec.europa.eu/environment/water/quantity/scarcity_en.htm)

**Comments:** There are no specific directives for water scarcity and drought issues. The water scarcity and drought are partially mentioned in the Water Framework Directive (2000/60/EC) among the purposes (Art. 1), environmental objectives to reach (Art. 4), and the programme of measures to be implemented for preserving water quality and quantity (Art. 11). Anyway, during the last ten years some documents were produced in order to give information about drought and water scarcity status in Europe. Furthermore, these documents suggest some procedures and indexes for evaluating the drought risk and planning measures of mitigation. Based on the periodical Follow-up results, a Policy Review for water scarcity and droughts was completed in November 2012, which is part of the "BluePrint for Safeguarding European Waters" adopted by the European Commission on 14 November 2012.

**Topic:** Integrated management of surface- and ground-water on a river basin scale

**References - Regulation:** Water Framework Directive - 2000/60/EC

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

**References - Comments/Explanations:**

[https://ec.europa.eu/environment/water/water-framework/index\\_en.html](https://ec.europa.eu/environment/water/water-framework/index_en.html)

**Comments:** The Water Framework Directive deals with the integrated management of surface water and groundwater on a river basin scale.

Regarding surface waters, their protection is intended from an ecological and chemical point of view. The “good ecological status” is defined in terms of the quality of the biological community, the hydrological characteristics and the chemical characteristics. The “good chemical status” is defined in terms of compliance with all the quality standards established for chemical substances at the EU level.

Regarding groundwater, its protection is intended from a chemical and quantitative point of view. Besides setting chemical quality standards, as established in other EU regulations for specific issues (e.g., nitrates, pesticides and biocides), the objective for a “good chemical status” is achieved by prohibiting direct discharges to groundwater, and monitoring groundwater bodies so as to detect changes in chemical composition, and to reverse any anthropogenically-induced upward pollution trend. Quantity is also a major issue for groundwater and the “good quantity status” is achieved taking into account that groundwater abstraction must respect the natural recharge and the water need to support connected ecosystems.

The best model for a system of integrated water management is management by river basin, instead of according to administrative or political boundaries. As such, Member States are required to establish a set of measures for the achievement of the good status of water for each river basin district by the required timescale. Such measures, collected in "River Basin Management Plans" must be updated every six years. The plans include the river basin's characteristics, a review of the impact of human activity on the status of waters in the basin, estimation of the effect of existing legislation and the remaining "gap" to meeting the “good status” objectives, and a set of measures designed to fill the gap.

**Topic:** Protection of groundwater against pollution and deterioration

**References - Regulation:** Groundwater Directive (2006/118/EC)

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006L0118-20140711>

**References - Comments/Explanations:**

<https://ec.europa.eu/environment/water/water-framework/groundwater/framework.htm>

<https://ec.europa.eu/environment/water/water-framework/groundwater/history.htm>

**Comments:** The Groundwater Directive (GWD) complements the Water Framework Directive (WFD), by setting out detailed provisions on chemical status and other measures to identify and reverse pollution trends. In specific, to detect possible threats of the quality of groundwater bodies in the future, the GWD requires the identification of areas where groundwater suffers increasing trends in contaminant concentration, highlighting the need to carefully manage such areas even if the concentration is below the regulatory limit. If upward trends are found, these should be reversed when the concentration of the pollutant reaches 75 % of the threshold value. The GWD also lays down requirements on the implementation of measures necessary to reverse any significant and sustained upward trend.

Criteria are set for both the assessment of good groundwater chemical status (Article 3, Annex 1 to 3), and the identification and reversal of significant and sustained upward trends and for the definition of starting points for trend reversals (Article 5, Annex 4).

Elevated background levels of substances or ions or their indicators, that occur due to natural hydro-geological reasons, are taken into account when establishing threshold values (Annex 2, Comma 3). See BRIDGE project.

**Topic:** Guidelines for Natural Background Levels and Threshold Values definition in Groundwater

**References - Regulation:** Water Framework Directive - 2000/60/EC

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

Groundwater Directive (2006/118/EC)

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006L0118-20140711>

**References - Comments/Explanations:**

[http://nfp-at.eionet.europa.eu/Public/irc/eionet-](http://nfp-at.eionet.europa.eu/Public/irc/eionet-circle/bridge/library?l=/deliverables/bridge_reportpdf/ EN 1.0 &a=d)

[circle/bridge/library?l=/deliverables/bridge\\_reportpdf/ EN 1.0 &a=d](http://nfp-at.eionet.europa.eu/Public/irc/eionet-circle/bridge/library?l=/public_information/meeting_2006-06-21/environmental_thresholds/ EN 1.0 &a=d)

[\[circle/bridge/library?l=/public\\\_information/meeting\\\_2006-06-\]\(http://nfp-at.eionet.europa.eu/Public/irc/eionet-circle/bridge/library?l=/public\_information/meeting\_2006-06-21/environmental\_thresholds/ EN 1.0 &a=d\)](http://nfp-at.eionet.europa.eu/Public/irc/eionet-</a></p></div><div data-bbox=)

[21/environmental\\_thresholds/ EN 1.0 &a=d](http://nfp-at.eionet.europa.eu/Public/irc/eionet-circle/bridge/library?l=/public_information/meeting_2006-06-21/environmental_thresholds/ EN 1.0 &a=d)

**Comments:**

The BRIDGE (Background cRiteria for the IDentification of Groundwater thrEsholds) project was funded by the European Union's Research Directorate-General, and contributed to the global European effort to define a community approach to water management.

The BRIDGE guidelines propose a well-defined method for the derivation of pollutant threshold values (TV) for groundwater bodies in support of the Status provisions of the Water Framework Directive (WFD) and the Groundwater Directive (GWD), based on a clear definition of both anthropogenic and natural contributions to pollutants' concentration in groundwater. To define TVs for particular pollutants, their behavior in the environment was taken into account, in terms of hydrogeological and biogeochemical properties.

**Topic:** Non-point sources of contamination in groundwater bodies (e.g., nitrate)

**References - Regulation:** Nitrates Directive (91/676/EEC)

<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1561542776070&uri=CELEX:01991L0676-20081211>

**References - Comments/Explanations:**

[https://ec.europa.eu/environment/water/water-nitrates/index\\_en.html](https://ec.europa.eu/environment/water/water-nitrates/index_en.html)

**Comments:** The Nitrates Directive aims at reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution. It refers to: surface freshwaters, groundwater freshwater bodies, estuaries, coastal waters and marine waters. It requires (Article 3) the identification of areas affected or that could be affected by nitrate contamination and the subsequent designation of vulnerable and not vulnerable zones to nitrates (criteria are listed in Annex 1). It sets the threshold value of 50 mg/L (World Health Organization recommendation) and the guideline value of 25 mg/L as reference values for the implementation of action programmes for the prevention of nitrate contamination (Article 5).

It also requires the implementation of a monitoring program (i.e., establish a monitoring network for both surface- and ground-waters, Article 6) and sets codes of good agricultural practice (Annex 2).

The Nitrates Directive is part of the Water Framework Directive (2000/60/EC) and the Groundwater Directive (2006/118/EC).

**Topic:** inorganic and organic contamination in surface- and ground-waters

**References - Regulations:**

Italian regulations (in ITA) D. Lg.s 152/2006

- limits for water column: TAB 1/A, allegato I, Parte III, D.Lgs. 152/2006  
<https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2006-04-03:152!vig=>
- limits for sediments TAB 2/A and 3/A in bodies in marine-coastal bodies and transitional waters.

examples of other Countries regulations:

<https://www.env.go.jp/en/water/gw/gwp.html>

guidelines: USEPA- metals risk assessment

<https://www.epa.gov/sites/production/files/2013-09/documents/metals-risk-assessment-final.pdf>

**Comments/Explanations:**

The metals limits inside the Italian Legislation are reported in the tables as “metal and his compounds”.

Regarding the EPA guidelines, consider the general idea of the *site-specific* character of metals and we would like to underline some fundamental properties of metals that should be addressed and incorporated into all inorganic metals risk assessments reported in the incipit of the document. Here we report an interesting table from the EPA document:

Table 3-2. Examples of organometallic compounds

Metal/metalloid Organometallic compounds

**As** Methylarsenic acid, dimethyl arsenic acid, trimethyl arsine, trimethylarsine oxide

**Pb** Tetramethyl/ethyl lead, trimethyl/ethyl lead, dimethyl/ethyl lead

**Hg** Methyl mercury, dimethyl mercury

**Se** Dimethyl selenide, dimethyl diselenide, seleno-amino acids

**Sn** Tributyltin, bis(tributyltin) oxide