

# Urban wastewater treatment

## Updating EU rules

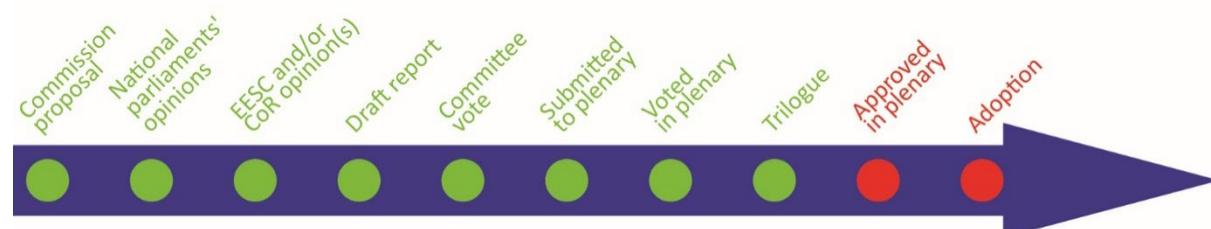
### OVERVIEW

In October 2022, under the European Green Deal, the European Commission tabled a proposal for a recast of the Urban Wastewater Treatment Directive. Dating back to 1991, and instrumental to the achievement of European Union water policy objectives, the directive needs to be updated and adapted to new challenges and realities.

The recast proposal would introduce new obligations to do more to control pollution due to rainwater, impose stricter standards for nutrient removal and require advanced treatment for the removal of micro-pollutants. To cover treatment costs, a system of extended producer responsibility (EPR) targeting pharmaceuticals and cosmetics would be set up. To align the directive with the Green Deal's ambitions, an energy neutrality obligation would be introduced for wastewater treatment plants. Water reuse and sludge management requirements would be clarified to enhance circularity. Health parameters would be monitored in wastewater to support public health action.

The European Parliament and the Council reached a provisional agreement on 29 January 2024. The text was endorsed by Member State representatives on 1 March and by Parliament's Committee on the Environment, Public Health and Food Safety on 11 March 2024. It now awaits formal adoption by the co-legislators. The plenary vote is scheduled for the April 2024 session.

<b>Proposal for a directive of the European Parliament and of the Council concerning urban wastewater treatment (recast)</b>		
<i>Committee responsible:</i>	Environment, Public Health and Food Safety (ENVI)	COM(2022) 541 final 26.10.2022
<i>Rapporteur:</i>	Nils Torvalds (Renew, Finland)	2022/0345(COD)
<i>Shadow rapporteurs:</i>	Deirdre Clune (EPP, Ireland) Marek Paweł Balt (S&D, Poland) Margrete Auken (Greens/EFA, Denmark) Pietro Fiocchi (ECR, Italy) Danilo Oscar Lancini (ID, Italy) Nikolaj Villumsen (The Left, Denmark)	Ordinary legislative procedure (COD) (Parliament and Council on equal footing – formerly 'co-decision')
<i>Next steps expected:</i>	Plenary vote on trilogue agreement	



## Introduction

Urban wastewater carries a range of [organic and inorganic substances](#), as well as dissolved and suspended solids. Those include micro-organisms (bacteria, viruses), biodegradable organic materials and nutrients from human excreted waste, fats and oils, solvents, detergents, micro-pollutants (medicines, food additives, per- and polyfluoroalkyl substances ([PFAS](#)), biocides, plastics, etc.), metals and other substances from homes and industry. Wastewater treatment aims to reduce the pollutant load prior to discharge into the environment, typically rivers, lakes and coastal zones. Adopted in 1991, the [Urban Wastewater Treatment Directive](#) (UWWTD) targets pollution by organic matter and nutrients (nitrogen and phosphorus), a main driver of the [eutrophication](#) of Europe's water bodies. Assessments show that the directive has significantly contributed to [improving water quality](#) across the EU, but [pressures](#) persist. At the same time, the UWWTD needs to be equipped to cope with issues of emerging concern, such as the presence of many more pollutants in urban wastewater than are covered in existing legislation, or storm water surges from extreme weather caused by climate change; and should be aligned with the European Green Deal's climate neutrality and circularity objectives. The European Commission therefore tabled a [proposal](#) for a [recast](#) of the UWWTD on 26 October 2022, as part of the 2021 [zero pollution action plan for air, water and soil](#).

## Existing situation

The [UWWTD](#) aims at protecting the environment from the adverse effects of urban wastewater discharges. It sets out [EU-wide rules](#) for the establishment of wastewater infrastructure, minimum treatment standards and requirements on monitoring, reporting and information provision. The required level of wastewater treatment depends on the size of the agglomeration<sup>1</sup> and on the sensitivity of water into which the effluent is discharged. Under the directive, Member States are [required](#) to ensure the collection of wastewater in urban agglomerations of at least 2 000 population equivalent (p.e.) and the application of **secondary treatment** on the wastewater collected, to reduce oxygen-consuming substances, measured by biochemical oxygen demand (BOD) and chemical oxygen demand (COD) parameters (see glossary below). Where building a collecting system comes at disproportionate costs or brings no environmental benefit, the UWWTD allows individual systems (e.g. domestic treatment plants; septic tanks) or other appropriate systems (IAS) to be used as an alternative, as long as they achieve the same level of environmental protection.

**More stringent treatment** must be applied in agglomerations above 10 000 p.e. when discharging treated wastewater in 'sensitive areas' and their catchments. Sensitive areas are identified by Member States based on three criteria laid down in Annex II. Those are: (a) natural freshwater lakes, other freshwater bodies, estuaries and coastal waters that are eutrophic or at risk of becoming eutrophic; (b) surface waters serving as catchment areas for drinking water that could contain more than the concentration of nitrate prescribed in the [Drinking Water Directive](#) if action is not taken; and (c) areas where further treatment is needed to ensure that the objectives of other directives are met. For sensitive areas subject to eutrophication (criterion a), Member States need to reduce nitrogen (N) and/or phosphorus (P) loads. Thresholds for nutrient reduction are set in Annex I B, Table 2. For sensitive areas identified under criteria (b) and (c), reduction levels are to be derived from other water legislation, e.g. the Drinking Water Directive or the [Water Framework Directive](#). Member States can also designate less sensitive areas in marine water bodies, in which a primary treatment could be considered appropriate. The identification of (less) sensitive areas must be reviewed every 4 years.

Discharges of **industrial wastewater** into collecting systems and urban wastewater treatment plants are subject to prior regulation and/or specific authorisation by national authorities, based on general principles set in Annex I C. They must be subject to **pre-treatment**, to protect staff health and collecting system and treatment plant functionality; to ensure that they do not adversely affect the environment, or prevent receiving waters from complying with other EU directives; and to ensure the safe disposal of [sludge](#). Direct discharges of **biodegradable industrial wastewater** from

food processing industry plants into the water environment representing a load of 4 000 p.e. or more are also subject to prior regulation and/or authorisation. Industries covered by this provision are listed in Annex III. Member States set requirements appropriate to the nature of the industry concerned for such wastewater discharge.

#### Key terms in the directive

**Urban wastewater:** domestic wastewater or the mixture of domestic wastewater with industrial wastewater and/or [run-off](#) rainwater (Article 2(1), UWWTD). Domestic wastewater refers to wastewater from residential settlements and services originating predominantly from the human metabolism and household activities.

**Biochemical oxygen demand (BOD):** the amount of dissolved oxygen used by micro-organisms in the biological process of metabolising organic matter in water. The more organic matter there is, the greater the BOD. The greater the BOD, the lower the amount of dissolved oxygen available for higher animals (e.g. fish). The BOD is thus an [index](#) of the degree of organic pollution in water bodies.

**Chemical oxygen demand (COD):** another method of estimating how much oxygen would be depleted from a receiving water body as a result of bacterial action. The COD test uses a strong chemical oxidising agent to chemically oxidise the organic material in the wastewater sample under heat and strong acid conditions. The BOD test uses a population of bacteria and other micro-organisms to try to duplicate what would occur in a natural stream over a five-day-period.

**Population equivalent (p.e.):** average pollution load released by one person in one day.

**Primary treatment:** treatment by a physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD of the incoming wastewater is reduced by at least 20 % before discharge, and the total suspended solids of the incoming wastewater by at least 50 % (Article 2(7), UWWTD).

**Secondary treatment:** treatment that supplements the elimination of solid matter (primary treatment) by breaking down organic substances using bacteria. The UWWTD defines it as 'treatment by a process generally involving biological treatment with a secondary settlement or other processes in which the requirements set in Table 1 of Annex I are respected' (Article 2(8)). In particular, BOD must be reduced to 25 mg/l oxygen, or a minimum reduction of 70-90 % (in relation to the load of the influent) must be achieved. COD must be reduced to 125 mg/l oxygen, or a minimum reduction of 75 % needs to be achieved.

**Tertiary treatment:** treatment that can consist of nutrient removal, chemical or physical disinfection. As part of the 'more stringent treatment' required by the UWWTD to protect waters threatened by eutrophication, total nitrogen in wastewater discharges must be reduced to concentrations of 15 mg/l (in agglomerations with 10 000-100 000 p.e.) and to 10 mg/l (in those above 100 000 p.e.), or a minimum reduction of 70-80 % needs to be achieved. Total phosphorus must be reduced to 2 mg/l (in agglomerations with 10 000-100 000 p. e.) and to 1 mg/l (in those over 100 000 p.e.); or a minimum reduction of 80 % needs to be achieved (Table 2, Annex I). Under Annex IB (4), more stringent requirements than those set in Table 1 and/or Table 2 have to be applied where required to ensure that the receiving waters satisfy any other relevant directives.

Sources: UWWTD, European Commission [impact assessment](#), UWWTD [10th implementation report](#).

Member States' [obligations](#) also include ensuring that wastewater treatment plants are properly designed, constructed, operated and maintained, to ensure sufficient performance under all normal weather conditions, taking seasonal loads into account. They need to establish measures to limit pollution from [storm water overflows](#) under extreme situations, such as unusually heavy rainfall. Member States have to monitor the performance of treatment plants (i.e. compliance with the requirements for discharged wastewater) and the receiving waters. Reference methods for monitoring and evaluation of results are outlined in Annex I D. This covers, for instance, the frequency of sampling. Member States also need to monitor sewage sludge disposal. They must inform the public of how they deal with urban wastewater and sludge, through reports published every 2 years. Those reports must be transmitted to the European Commission upon publication.

Across the EU, wastewater from [21 708 agglomerations](#) representing pollution of 517 million p.e.,<sup>2</sup> is treated in centralised systems. Some 98 % of the generated load is collected appropriately, 92 %

meets the primary and secondary treatment standards, and another 92 % the more stringent standards. Wastewater operators are mainly public companies (60 %).

## Preparation of the proposal

The UWWTD was subject to an [evaluation](#) in 2019, supported by an [external study](#). The evaluation [concluded](#) that the directive has been generally effective, reducing targeted pollutant loads from urban point sources, thus contributing to improvements in water quality across the EU. However, it does not optimally address pressures from storm water overflows and urban run-off, the use of IAS and pressures from small agglomerations or non-connected dwellings. In addition, more needs to be done on chemical pollutants. The directive contains only limited provisions on wastewater and sludge re-use or recovery of valuable components; and there is scope to improve its coherence with EU climate and energy policies. The [implementation appraisal](#) issued by the European Parliamentary Research Service (EPRS) in October 2022 analyses the evaluation outcomes in detail.

The [impact assessment](#) (IA) accompanying the legislative proposal was subject to a consultation process including semi-structured interviews, workshops, an online [public consultation](#), a written consultation on factual information and assumptions for modelling, and a final stakeholder conference. The public consultation (28 April to 21 July 2021) attracted 284 replies, 35 % of which came from companies and business associations, 19 % from citizens and 16 % from public authorities. The IA was supported, among other sources, by two external studies, a [general one](#) and a [feasibility study](#) concerning an extended producer responsibility system for micro-pollutants. The IA received a 'positive opinion with reservations' from the Regulatory Scrutiny Board on 3 June 2022. EPRS issued an [initial appraisal](#) of the Commission's impact assessment in March 2023.

## The changes the proposal would bring

### Pollution sources and pollutants

The [proposal](#) would expand the scope of the directive to **smaller agglomerations** with a p.e. of 1 000 or more. Specifically, Member States would need to ensure the collection of urban wastewater and the application of secondary treatment on the collected wastewater before discharge in agglomerations with a p.e. of 1 000 and above by the end of 2030. They would be subject to an additional obligation to ensure that all sources of domestic wastewater are connected to collecting systems, where they exist.

While still allowed, the use of non-centralised facilities ('**individual systems**' – IAS) for treating urban wastewater would be subject to new obligations. Member States would have to ensure that they are properly designed, operated and maintained; registered in a public registry; and regularly inspected. When individual systems represent over 2 % of the reported load treated in agglomerations of 2 000 p.e. and more, Member States would have to provide the Commission with justification for their use. The Commission could set minimum requirements on design, operation, and maintenance, and specific requirements on inspections through delegated acts.

To reduce pollution due to rainwaters (urban runoff and storm water overflows), Member States would need to develop locally **integrated urban wastewater management plans**. Those plans should be established by the end of 2030 for agglomerations of 100 000 p.e. and above; and by the end of 2035 for those of 10 000 p.e. and more, where storm water overflow or urban runoff poses a risk to the environment or human health.<sup>3</sup> Plans would have to include an **indicative target** (for storm water overflow), which should not exceed 1 % of the annual collected urban wastewater load calculated in dry weather conditions (by the end of 2035 for agglomerations of 100 000 p.e. and more; by the end of 2040 for those of 10 000 p.e. and more). Plans should prioritise preventive measures avoiding the entry of unpolluted rainwater into collecting systems (including nature-based solutions) and optimising existing infrastructure use.

**Stricter standards** would be introduced for nitrogen and phosphorus removal (i.e. **tertiary treatment**). Specifically, total nitrogen in wastewater discharges should be reduced to concentrations of 6 mg/l, or a minimum reduction of 85 % would need to be achieved. Total phosphorus should be reduced to 0.5 mg/l, or a minimum reduction of 90 % should be achieved. These new N/P standards would need to be applied in all urban wastewater treatment plants treating a load of 100 000 p.e. and above by the end of 2035. By the end of 2040, they would also be mandatory for agglomerations of 10 000 p.e. and above that discharge in areas subject to, or at risk of, eutrophication. Criteria for designating such areas would be clarified to strengthen consistency with other water legislation, and explicitly include areas where eutrophication is considered an issue according to data collected under the [Marine Strategy Framework Directive](#),<sup>4</sup> as well as water bodies covered by the Water Framework Directive that are at risk of not maintaining or reaching [good ecological status](#) or potential. Member States should draw up their lists of areas sensitive to eutrophication by the end of 2025, and update them every 5 years.

By the end of 2035, all urban wastewater treatment plants treating a load equal to or greater than 100 000 p.e. would have to provide **quaternary treatment**<sup>5</sup> to remove a large spectrum of micro-pollutants (i.e. substances that can pollute water even at low concentrations). By the end of 2040, quaternary treatment would also be mandatory for all agglomerations with a p.e. between 10 000 and 100 000 in areas identified as sensitive to pollution with micro-pollutants, unless Member States demonstrate the absence of risks to the environment or to public health based on a risk assessment. Such sensitive areas, to be listed at national level by the end of 2030, would include locations where treated urban wastewater discharges to water streams result in dilution ratios below 10,<sup>6</sup> or where the receiving water bodies are used for drinking water production, aquaculture or bathing. Selected representative micro-pollutants would serve as indicators to check the performance of the fourth treatment regarding micro-pollutant reduction in urban wastewater discharges. An **80 %** minimum percentage of removal, calculated on the basis of this set of pollutants, should be achieved.

### Micro-plastics

According to the Commission IA, treatment plants capture micro-plastics relatively well (80.5% with a primary treatment, 97.5 % with a secondary and 99.2 % with a tertiary treatment). Measures to better manage urban run-off and storm water overflows, to impose more tertiary treatment, as well as to monitor IAS and cover smaller agglomerations, are expected to allow collecting and treatment systems to capture more micro-plastics (while increasing their presence in sludge). To improve knowledge on micro-plastics releases, the recast directive would require Member States to monitor, for all agglomerations of above 10 000 p.e., the presence of micro-plastics both in urban wastewater and in sludge, based on harmonised sampling and analytical methods. At the same time, the [restriction](#) of micro-plastics added to products for specific purposes, under the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation, and the [EU initiative](#) to address unintentionally released micro-plastics, should contribute to reducing micro-plastics emissions at source.

In line with the [polluter-pays principle](#), a system of **extended producer responsibility** (EPR) targeting [pharmaceuticals](#) and [cosmetic products](#), identified as the main sources of micro-pollutants in urban wastewater, would be set up to cover the additional treatment and monitoring costs for micro-pollutants. Producers would be exonerated from the EPR obligation if they can demonstrate that the quantity of the product they place on the market is below 2 tonnes per year; or that no micro-pollutants are generated at the product's end of life. The proposed directive would set minimum requirements for EPR implementation.

Pre-authorisation issued by the national competent authorities for **non-domestic wastewater** discharges entering public sewer systems (including those from industrial activities) would be subject to additional requirements. Before granting authorisation, competent authorities would need to consult wastewater operators, who should also have access to the authorisations issued on request. The authorisation should ensure that the polluting substances present in non-domestic wastewater can be abated by the treatment plant. If the UWWT plant treats discharges from an

installation holding a permit under the [Industrial Emissions Directive](#), the pollutant load of the discharges from the treatment plant must not exceed the pollutant load that would arise from direct discharges of the installation, compliant with the emission limit values set in its permit.<sup>7</sup> Regular **monitoring** of non-domestic pollutants in the inlets and outlets of wastewater treatment plants should be ensured, to take appropriate measures to identify and address the source(s) of possible pollution (including, if necessary, the withdrawal of the authorisation delivered). Non-domestic pollutants to be tracked would include, inter alia, [priority substances](#) and groundwater pollutants; as well as pollutants covered by the [European Pollutant Release and Transfer \(E-PRTR\) Regulation](#), now subject to [review](#). At least two samples would be taken each year for agglomerations above 100 000 p.e., and one every 2 years for those above 10 000 p.e.

## Energy neutrality and circularity

A new obligation would be introduced to achieve **energy neutrality** at national level in all treatment facilities of 10 000 p.e. and above. By the end of 2040, Member States would need to ensure that the total annual renewable energy produced<sup>8</sup> at national level by all urban wastewater treatment plants above 10 000 p.e. is equivalent to the total annual energy used by all such plants. To help reach this objective, [energy audits](#) of wastewater treatment plants would be required, with particular focus on biogas production from sludge.

Member States would be required to promote the **reuse of treated wastewater** from all urban wastewater treatment plants systematically. If used for agricultural irrigation, reclaimed water should comply with the requirements of the [Water Reuse Regulation](#). Where relevant, water reuse should be considered in the context of the development of the integrated urban wastewater management plans. In line with the [waste hierarchy](#), **sludge management** should maximise prevention, reuse and recycling of resources, while minimising adverse environmental impacts. The Commission would set out the minimum reuse and recycling rates for P and N from sludge in delegated acts, to take account of technologies available for N/P recovery in sludge.

## Public health

To support public health action, Member States would need to monitor the presence of a number of viruses (SARS-CoV-2 and its variants; polio; influenza), emerging pathogens and contaminants of emerging concern in urban wastewater. A national system for permanent cooperation and coordination between competent authorities responsible for public health and those responsible for urban wastewater treatment should be set up. For agglomerations of 100 000 p.e. and more, Member States would need to ensure, by 1 January 2025, that **antimicrobial resistance** is monitored at least twice a year at the inlets and outlets of urban wastewater treatment plants.

Member States should improve **access to sanitation for all**, particularly vulnerable and marginalised groups, encouraging, by end 2027, the setting up of a sufficient number of freely, safely accessible sanitation facilities in public spaces for all agglomerations of 10 000 p.e. and more.

## Public information, access to justice and compensation

Information on urban wastewater collection and treatment would be made available online, in each agglomeration. Once a year, citizens connected to collecting systems would receive information related, inter alia, to compliance with the directive standards and volume of water collected and treated, on their invoices or via smart applications. New provisions would allow the public and non-governmental organisations to conduct a legal review of the decisions taken by Member States under the directive, and ensure that the public concerned is able to claim and get **compensation for damage to health** resulting from a violation of national measures adopted in accordance with the directive. If the claim is supported by evidence indicating a causal link between the damage and the breach, it would be up to the person responsible for the violation to prove that the violation did not cause or contribute to the damage.

## Evaluation

The Commission would evaluate the directive by the end of 2030 and again by the end of 2040. This would include analysing the need to adapt the list of products subject to extended producer responsibility, based, inter alia, on data resulting from the new monitoring obligations.

## Advisory committees

In its [opinion](#) adopted on 22 February 2023 (rapporteur: Stoyan Tchoukanov, Diversity Europe – Group III, Bulgaria), the European Economic and Social Committee (EESC) strongly supports the EPR proposal, but stresses that exemptions must be limited for it to be efficient, and that online retailers should be covered. In its view, if the directive is extended to agglomerations from 1 000 p.e, there must be room for decentralised solutions through small-sized plants, with special attention paid to functionality. While welcoming urban wastewater management plans, it notes that they risk becoming 'empty shells', as the content and objective are only indicative. The EESC suggests introducing a cap on the occurrence of sewer overflows and including proper monitoring and quantification of sewer leakage as a requirement in the directive. It demands increased public participation, with mechanisms for citizens to report observed failures in wastewater collection and/or treatment, and specific attention to illegal industrial discharges. More broadly, it calls for a comprehensive, coordinated roadmap on water challenges, including wastewater ('EU Blue Deal').

In its [opinion](#) adopted on 5 July 2023 (rapporteur: Åsa Ågren Wikström, EPP, Sweden), the European Committee of the Regions insists that the framework should be risk-based, goal-oriented and flexible enough to account for local and regional differences within and among Member States. It considers that the one-size-fits-all approach could lead to disproportionate costs in relation to environmental benefits achieved, particularly as regards the nitrogen removal requirements. The CoR supports the introduction of the EPR scheme. It takes the view that an extension of the deadlines proposed in the Commission text would enable efficiency as well as coordination with other legislation. Considering individual systems as an adequate solution for wastewater treatment in isolated and sparsely populated areas and outermost regions, the CoR calls for decentralised solutions with adequately functioning individual systems, to be regulated within the Member States or at regional level.

## National parliaments

The [deadline](#) for submitting reasoned opinions on the grounds of subsidiarity was 16 March 2023. While no reasoned opinion was issued within the time limit, four parliaments have raised a number of concerns through political dialogue. Those relate for instance to the number of delegated acts envisaged in the proposal, the right to compensation, the assessment of costs, and deadlines.

## Stakeholder views<sup>9</sup>

The proposed EPR scheme is subject to diverging views. The [European pharmaceutical industry](#) considers it discriminatory for the sector to finance wastewater treatment upgrades that would remove micro-pollutants from other origins. For them, applying EPR to incentivise 'green by design' products does not account for the biological nature of medicines' action, nor for the complexity of medicine authorisation based on quality, safety, and efficacy requirements.

[Cosmetics Europe](#) sees the proposed definition of micro-pollutant as too broad and ambiguous, and asks for a defined list of micro-pollutants to be included in the directive, so that they are clearly identified. They note that cosmetics are very often not the only users of a substance, which can arise from different sources, and insist that each company whose products release micro-pollutants in urban wastewater should pay a share of the total cost that is calculated from its proportional contribution to this overall micro-pollutant load.

For the [European Environmental Bureau](#) (EEB), the proposed EPR should be extended to reflect the full range of micro-pollutants ending up in urban wastewater, and include, as a minimum, the biocides, pesticides and textiles industry. EurEau, representing the European water sector, [strongly supports](#) EPR, stressing that the schemes should be operational and able to generate sufficient finance well before the first deadlines for compliance with quaternary treatment. It demands the removal of the exoneration clause for producers placing products on the market in small quantities, and suggests adding a delegated act provision to extend the list of products subject to EPR to all polluting sectors so that all can contribute. EurEau also recommends redefining the nutrient treatment requirements, adjusting them to agglomeration size; and improving coordination of the proposed list of micro-pollutants to be used to assess quaternary treatment with EU environmental legislation (notably the [water pollutants proposal](#), currently being considered by the co-legislators).

The European association of public water operators [Aqua Publica Europea](#) stresses that green energy bought from the electrical grid and sold to other industries should be taken into account in energy neutrality calculations. The association demands better consideration of local contexts to prevent territorial cleavage; and calls for flexibility mechanisms to prioritise intervention and investment where they are most needed, given the multiple objectives of the directive and the potential trade-offs between some of them, such as treatment requirements and energy neutrality.

European waste management association [FEAD](#) stresses that mainstreaming control at source of harmful pollutants is a prior condition for sustainable sludge management, and that systematic monitoring of the input would enable optimisation of treatment processes. In their view, the revised UWWTD should focus on greatly improving wastewater monitoring and digital data exchange, as well as centralised data collection, in order to improve the detection of micro-pollutants in plants treating a load between 10 000 and 100 000 p.e., and to help Member States draw up their lists of areas sensitive to pollution with micro-pollutants. For FEAD, Member States should be required to introduce water reuse systems in areas particularly affected by drought, as well as for the irrigation of public green areas.

The non-governmental organisation [Chemsec](#) seeks to include the removal of PFAS in the advanced treatment requirements. In a [joint analysis of the proposal](#), the EEB, the Surfrider Foundation and Healthcare without harm, while welcoming many good elements, point to several areas for improvement. They call to include monitoring of sewer leakages, to use broad chemical screenings that take account of the full effect of chemical cocktails experienced by aquatic life, and to set a legally binding target for sewer overflows in the integrated urban wastewater management plans. They ask that the monitoring requirements on the presence of micro-plastics in sewage sludge be accompanied by specific measures regarding highly contaminated sludges. In their view, the sanitation provisions should be strengthened by ensuring, and not only improving, access to sanitation. They also consider that the article on access to justice needs to be broadened.

The [deadline](#) for feedback on the proposal following its adoption was 14 March 2023. Over a hundred [contributions](#) were received.

## Legislative process

### European Parliament

In Parliament, the Committee on the Environment, Public Health and Food Safety (ENVI), responsible for the file, appointed Nils Torvalds (Renew, Finland) as rapporteur on 12 January 2023.

The ENVI committee adopted its [report](#) on 20 September 2023, with 60 votes in favour, 10 votes against, and 6 abstentions. The report would require Member States to ensure the collection of urban wastewater and the application of secondary treatment on the collected wastewater before discharge in agglomerations with a **p.e. of 750** and above (instead of 1 000 as proposed by the Commission) by the **end of 2032** (instead of 2030). It would be for the Member States to set the minimum requirements on the design, operation, and maintenance of **individual systems**, based

on Commission guidance, and to establish the requirements on regular inspections. They should exchange best practice on the use, operation and inspections of such systems every 4 years.

The report would give 3 more years for urban wastewater treatment plants to comply with the proposed nutrient removal (i.e. **tertiary treatment**) requirements. The **quaternary treatment** obligation would apply to all urban wastewater treatment plants treating a load of 150 000 p.e. and above within 10 years of the directive's entry into force; and to all agglomerations of 35 000 p.e. and above in areas listed as sensitive to pollution with micro-pollutants, within 15 years of entry into force. Four 'high risk substances' ([telmisartan](#), [bisphenol A](#), [beta-estradiol](#) and [perfluorooctane sulfonic acid](#)) would be added to the set of micro-pollutants used to check quaternary treatment performance as regards micro-pollutant removal.

The report supports the introduction of an **EPR scheme** for pharmaceuticals and cosmetic products, while requiring complementary national financing for the upgrade of urban wastewater treatment plants in order to avoid unintended consequences on the availability, affordability and accessibility of vital products, in particular medicines, and to ensure enough funds are available to operators. Such national funding cannot exceed 20 %. The report envisages the possibility for producers to be exonerated from the EPR obligation if they can demonstrate that their products are rapidly **biodegradable** in wastewater, or the substances in their products are rapidly biodegradable in aquatic conditions.<sup>10</sup> The Commission would be required to review the list of products covered by EPR every 5 years, on the basis of the results of the monitoring prescribed in the directive. By 2030, consideration should be given to extending the EPR obligations to products containing in particular micro-plastics and PFAS (taking into account any restrictions on PFAS).

For agglomerations of above 10 000 p.e., Member States would have to **monitor** the presence of additional pollutants at the inlets and outlets of wastewater treatment plants (PFAS and [chlorothalonil](#), in line with the [Drinking Water](#) and [Environmental Quality Standards](#) Directives, and the presence of micro-pollutants in sludge. They should also conduct a **broad chemical screening** annually, including chemical mixtures, to identify substances that cause concern for aquatic life, drinking or bathing water quality, or indicate non-compliant industry discharges to sewers.

Under the report, Member States would be required to promote the **re-use of treated wastewater** especially in water-stressed areas and in particular for industrial purposes, when there is no adverse effect for the environment and health risk management measures have been taken. Reclaimed water to be reused in agricultural irrigation in compliance with the [Water Reuse Regulation](#) could be temporarily subject to less strict requirements for nutrient removal, but would have to fulfil a number of specific conditions, such as making sure there is no eutrophication risk, or conducting additional monitoring of micro-pollutants and micro-plastics. Unless they already have a comparable strategy in place, Member States would have to establish a **national water saving and reuse plan**, within 2 years of the directive's entry into force.

On energy neutrality of urban wastewater treatment plants, the report specifies that renewable energy generated **both on-site and off-site** have to be taken into account in total annual renewable energy production. It also introduces a possibility for Member States to allow exceptionally the purchase of renewable energy from external sources (up to a maximum of 25 %) if they do not reach 100 % energy neutrality at national level despite implementation of all energy efficiency measures prescribed in the energy audits and are not able to increase energy production on- or off site.

Member States would be required to **ensure access to sanitation for all**, encouraging, by the end of 2030, the setting up of a sufficient number of freely, safely accessible sanitation facilities in public spaces for all agglomerations of **5 000 p.e.** and over (instead of 10 000 as proposed by the Commission). Member States should encourage public buildings, especially administrative ones, to make sanitation facilities available free of charge, and restaurants, shops and similar private spaces, to make sanitation facilities available for all, for free or for a low service fee.

To tackle micro-plastic release from textiles, the report includes a call for the Commission to propose legislation requiring microfibre filters for new washing machines at EU level by the end of 2027.

On 5 October 2023, Parliament adopted its [position](#) on the basis of the ENVI report, with 420 votes in favour, 62 votes against, and 84 abstentions. A few new amendments were adopted in plenary. One of those raises to 40 % the share of renewable energy that could be purchased externally. Another deletes from the text the provision proposing that, in cases where there is claim for compensation supported by evidence from which a causality link may be presumed between the damage and the violation, the [burden of proof](#) be on the person responsible for the violation.

## Council

The Council adopted its [general approach](#) on [16 October 2023](#). It proposes to extend the scope of the directive to agglomerations of **1 250 p.e.** and above. The deadline for compliance with the obligation to set up collecting systems and to apply secondary treatment for those agglomerations would be postponed from the end of 2030 to the end of **2035**. Member States that joined the EU after 2004 and after 2006 could obtain a deadline extension for maximum 8 and 12 years respectively. The deadlines for establishing integrated urban wastewater management plans for agglomerations of 100 000 p.e. and above, and for those between 10 000 and 100 000 p.e. included in a list of agglomerations meeting certain conditions, would be extended by 5 years (to the end of 2035 and the end of 2040 respectively). The threshold for the mandatory **tertiary treatment** for larger agglomerations would be raised from 100 000 to 150 000 p.e. and the deadline for compliance set at the end of 2040. A risk-based approach (applying tertiary treatment only for discharges in areas identified as sensitive to eutrophication) would be retained for agglomerations above 10 000 p.e., with progressive targets and deadlines (20 % of agglomerations by the end of 2033, 60 % by the end of 2039 and 100 % by the end of 2045). Parameters for tertiary treatment would be amended, with adjustments to agglomeration size, and clarifications added regarding natural nitrogen retention and removal of nutrients in adverse temperature conditions. The Council adds a derogation from tertiary treatment requirements when treated urban wastewater is reused for agricultural irrigation, subject to certain conditions, such as the absence of environmental and sanitary risks. Similarly, the Council suggests raising the threshold above which **quaternary treatment** would be mandatory for larger urban wastewater treatment plants (from 100 000 to 200 000 p.e.), with progressive targets and deadlines (20 % of plants by the end of 2035, 60 % by the end of 2040 and 100 % by the end of 2045). The same stepwise approach would apply to agglomerations of 10 000 p.e. and above in areas listed as sensitive to pollution with micro-pollutants. The Council agrees on the introduction of the **EPR scheme**, setting a specific deadline (3 years from the directive's entry into force). Producers would be exonerated from the EPR obligation if they can demonstrate that the **quantity of the substances** in the product they place on the market is below 1 tonne per year (compared to 2 tonnes in the Commission proposal); or that no micro-pollutants are generated at the product's end of life. There would be no obligation for Member States to monitor **public health parameters** in urban wastewater, except in the event of a public health emergency. The deadline for antimicrobial resistance monitoring would be extended.

On **energy neutrality**, the Council specifies that renewable energy can be produced by the urban wastewater treatment plant operator on-site or off-site, and adds a possibility to purchase up to 30 % of the energy from external sources. The deadline for complying with the requirements on **access to sanitation** would be extended from the end of 2027 to 12 January 2029. The Council clarifies that the individuals affected have the right to claim and obtain **compensation** in accordance with national law, and removes the provisions on shifting the burden of proof.

## Trilogue agreement

The co-legislators reached a [provisional agreement](#) on 29 January 2024. Under the [deal](#), Member States will have to ensure the collection of urban wastewater and the application of **secondary treatment** on the collected wastewater before discharge in agglomerations with 1 000 p.e. and

above by the end of 2035 (instead of 2030). The text provides for possible deadline extensions to take into account the specific situation of Member States (8 to 10 years for Member States starting from further behind; 12 to 14 years for Croatia, Bulgaria and Romania, depending on the number of agglomerations with collecting systems and secondary treatment in place at the time of entry in force). The application of **tertiary treatment** should be ensured in all urban wastewater treatment plants treating a load of 150 000 p.e. and above by the end of 2039, and in agglomerations of 10 000 p.e. and more by the end of 2045, with intermediate targets and deadlines. Standards for tertiary treatment, adjusted to size, include, for phosphorus, a 0.5 mg/l concentration or a 90 % removal rate for plants treating a load of over 150 000 p.e., and a 0.7 mg/l concentration or a 87.5 % removal rate for those serving agglomerations between 10 000 and 150 000 p.e. For nitrogen, the co-legislators agreed on an 8 mg/l concentration for larger plants and a 10 mg/l concentration for those between 10 000 and 150 000 p.e. or an 80 % minimum percentage of reduction. The text includes a derogation from tertiary treatment requirements when treated urban wastewater is reused for agricultural irrigation, subject to specific conditions.

Member States will have to promote the **reuse of treated wastewater** from all urban wastewater treatment plants where appropriate, especially in water-stressed areas, and for all appropriate purposes. Measures on reuse should be considered in national strategies on water resilience. **Quaternary treatment** will be mandatory for all plants treating a load over 150 000 p.e., and for agglomerations over 10 000 p.e. based on a risk assessment, by the end of 2045, with intermediate targets and deadlines.

The co-legislators agreed on the introduction of an **EPR scheme** for pharmaceuticals and cosmetic products within 3 years of the directive's entry into force. As clarified in a recital, this EPR should apply to any product placed on the market, in any country and by any means, including via digital platforms. As advocated by Parliament, at least 80 % of the costs of quaternary treatment will be covered by producers, complemented by national financing in order to avoid unintended consequences on the availability, affordability and accessibility of medicines in particular. Producers will be **exonerated** from the EPR obligation if they can demonstrate that the quantity of the substances contained in the products they place on the EU market is below 1 tonne per year, or that the substances in their products are rapidly biodegradable in wastewaters or do not generate micro-pollutants in wastewaters at the end of their life. When evaluating the directive, the Commission is required to look into a possible EPR for products generating PFAS and micro-plastics in wastewater. It should also analyse the added value and the appropriateness of requiring mandatory **national water reuse plans**, as Parliament wanted. The monitoring of **PFAS** at the inlets and outlets of wastewater treatment plants will start in the first instance where the discharges reach catchment areas used for drinking water abstraction.

The co-legislators agreed on a stepwise approach for the **energy neutrality** target. Urban wastewater treatment plants will have to raise progressively the share of renewable energy used each year (20 % by the end of 2030, 40 % by the end of 2035, 70 % by the end of 2040, and 100 % by the end of 2045). The deal retains the possibility to produce the renewable energy on- or off-site and to purchase energy partly from external non-fossil sources under certain conditions. The maximum allowed share of energy purchased externally is set at **35 %** and relates only to the final target.

Member States will have to develop a list of public health parameters to be monitored in wastewaters, considering inter alia SARS-CoV-2 and its variants, poliovirus, influenza virus and emerging pathogens, as well as the frequency and location of the sampling. They will be required to monitor relevant health parameters in wastewaters in case of a public health emergency. Member States must take all necessary measures to ensure access to sanitation for all. By 12 January 2029, they should encourage the setting up of a sufficient number of freely, safely accessible sanitation facilities in public spaces for all agglomerations of 10 000 p.e. and more, and the making available of a sufficient number of free sanitation facilities in public buildings, notably administrative ones, for all agglomerations of 5 000 p.e. and more. The agreement provides individuals affected with a

right to claim **compensation** for damage to health, with an obligation for Member States to inform the public on this right and a clarification that compensation claims are subject to national rules.

The text was endorsed by the Council's Permanent Representatives Committee on 1 March 2024 and by Parliament's ENVI committee on 11 March 2024 (with 67 votes in favour, 7 votes against, and 6 abstentions). It now requires formal adoption by the co-legislators. The vote in plenary is planned for 11 April 2024.

## EUROPEAN PARLIAMENT SUPPORTING ANALYSIS

Bacian I., [Revision of the urban waste water treatment directive](#), implementation appraisal, EPRS, European Parliament, October 2022.

Vikolainen V., [Revising the Urban Wastewater Treatment Directive](#), initial appraisal of a European Commission impact assessment, EPRS, European Parliament, March 2023.

## OTHER SOURCES

European Parliament, [Urban wastewater treatment. Recast](#), Legislative Observatory (OEL).

## ENDNOTES

- <sup>1</sup> An agglomeration can be a city or municipality, but also a number of smaller cities or towns clustered together.
- <sup>2</sup> As noted in the IA, the total number of p.e. covered is higher than the total number of EU-27 citizens, because wastewater treatment plants treat water from inhabitants, but also from small enterprises and rainwater.
- <sup>3</sup> Member States should draw up a list by the end of 2025, based on criteria in Article 5(2), and review it every 5 years.
- <sup>4</sup> Areas located in the catchments of the Baltic Sea, the Black Sea, parts of the North Sea and parts of the Adriatic Sea.
- <sup>5</sup> Consisting of micro-pollutant removal, notably via ozonation and/or filtering with activated carbon or advanced techniques like nano-filtration, membranes (Source: IA). On this, see A. Pistocchi et al., '[European scale assessment of the potential of ozonation and activated carbon treatment to reduce micropollutant emissions with wastewater](#)', *Science of The Total Environment*, Vol. 848, 2022; A. Pistocchi et al., '[Treatment of micropollutants in wastewater: Balancing effectiveness, costs and implications](#)', *Science of The Total Environment*, Vol. 850, 2022.
- <sup>6</sup> Ratio between the flow of released wastewater from a treatment plant and the flow of the receiving body (river). A dilution rate of 10 means that 1 litre of wastewater from the plant is diluted in less than 10 litres in the river. Lower dilution rates pose more risks for the environment and potentially also for health (Source: Commission IA).
- <sup>7</sup> This is mirrored in Article 15(1) of the proposed [revision](#) of the Industrial Emissions Directive.
- <sup>8</sup> The [proposal tabled under the REPowerEU plan](#) to amend energy legislation identifies urban wastewater treatment sites as areas particularly suitable for renewable energy projects ('renewables go-to areas').
- <sup>9</sup> This section aims to provide a flavour of the debate and is not intended to be an exhaustive account of all different views on the proposal. Additional information can be found in related publications listed under 'Supporting analysis'.
- <sup>10</sup> As defined in Part 4.1.2.9.5 of Annex I to the [Regulation on classification, labelling and packaging of substances and mixtures](#).

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