



EUROPEAN ASSOCIATION
OF PUBLIC WATER OPERATORS

POSITION PAPER

REVISION OF THE
URBAN WASTE WATER
TREATMENT
DIRECTIVE

JULY 2021



Aqua Publica Europea, the European Association of Public Water Operators, welcomes the ongoing revision of the EU Urban Waste Water Treatment Directive 91/271 EC, after three decades of the Directive's contribution to the protection of our water bodies and of human health by setting clear requirements for the treatment of wastewater.

The current Impact Assessment conducted by the European Commission is the opportunity to review how the Directive can be adapted to address new challenges and fit the ambitious objectives of the EU Green Deal.

Representing 100% publicly owned operators providing water and sanitation services to about 80 million people in Europe, Aqua Publica Europea is happy to share the views of the experts whose daily mission is to provide services to citizens and contribute to sustainable development. Based on their on-the-ground knowledge, we would like to propose a few elements for consideration in the revision process of the Directive.

Wastewater treatment is a critical part of environmental and health protection efforts. The COVID-19 crisis has not only demonstrated that sanitation services are paramount for daily health and well-being, but wastewater operators can also play a role in early warning systems of the evolution of the pandemic within their communities.

This has shown the role of wastewater treatment for society. We therefore call upon the European institutions to keep in mind the bigger picture for wastewater treatment in the new legislation, to ensure that the sector can really provide its contribution to sustainable development, starting from the local level, and with a fair distribution of costs.

Wastewater treatment is too often considered the final point of a linear process, whereas it is just a phase of a circular one, as the water cycle is by definition circular. It is therefore important to take a view that fully considers wastewater treatment processes in a wider framework integrating the water cycle and going beyond water, in a circular economy perspective. On the one hand, this requires operators to have a broader view of their role and, on the other hand, it requires coherent policy framework that supports this integrated approach.

SUMMARY

We recall that **pollution prevention is altogether more efficient, cost-effective and fairer than remediation**, and aligns with the EU Green Deal. A preventative approach needs to be supported by tracking pollution at the source, which requires strengthening of the capacity of public administration.

Advanced treatment solutions should be implemented where there is an identified need, based on a **risk-based approach** that allows to localise and prioritise action and to avoid disproportionate measures. Treatment needs to remain a last resort with financial contribution of the polluting actors.

Addressing stormwater overflows and urban runoff to reduce pollution while taking into account climate change requires an **integrated approach**, gathering all actors, to adopt the most appropriate and most resilient solutions.

We encourage the consideration of **nature-based solutions**, as bringing nature into urban spaces leads to many benefits.

Considering the role that the UWWTD plays in achieving the objectives of the Water Framework Directive, it is paramount that the **WFD remains the guiding compass** so that the measures adopted can have full impact on the environment.

We highlight that increasing access to sanitation requires **tailored solutions**, especially in less densely populated areas.

As the wastewater sector has a role to play in the sustainable transition, it is important to consider that a **balance between objectives pulling in different directions** including energy efficiency, circularity and need to increase treatment.

We call for the **full alignment between the new UWWTD and related policies**, including the WFD, the Sewage Sludge Directive and the Industrial Emissions Directive.

To ensure long-term sustainability, solutions should not rely on “quick fixes” as investments in the waste water sector are usually characterised by their longevity (20-30 years for waste water treatment plants, nearly 100 years for sewers and collecting systems) and high costs of infrastructure.

New requirements will require important investments, it is therefore essential to keep in mind the investment gap of €253 billion by 2030 for the sector in the EU+UK [1], propose a cost-effective directive, and avoid future liabilities linked to oversized infrastructure that would impact future generations.

For all new measures and solutions, it is important to consider that costs are multiplied by the number of plants operated by the waste water treatment operators, which can be numerous in the case of smaller plants.



1. PREVENTING WATER POLLUTION FOR HIGHER IMPACT, FAIRNESS & COST-EFFECTIVENESS



AQUA PUBLICA'S KEY MESSAGES

A preventative approach to pollution is more efficient, cost effective and fair than treatment

End-of-pipe remediation should be the last resort

Pollution prevention supports the circular economy

Advanced treatment should be implemented where needed and paid for by polluting actors

Since wastewater treatment is the last resort to de-pollute water, the revised Directive needs to include provisions incentivising the reduction of pollution at the source. Solutions should integrate the identification of the sources of pollution in the environmental policies and be supported by increased capacity of public administration especially considering human resources needs for track and tracing; they also need to consider products' life-cycle – production, market, trade, disposal – as well as in industrial permitting.

A preventative approach fully aligns with EU Treaty, the Green Deal, and the recent Zero Pollution Action Plan, and its effectiveness (compared to additional treatment), especially for new pollutants, is backed up by recent data from the OECD [1]. Less pollution reaching the water system helps to close the circular economy loop by allowing cleaner sludge to result from wastewater treatment.

When there is a need for additional treatment due to pollution, a risk-based approach would allow to localise and prioritise action. For increased impact, measures should be combined with the application of the polluter-pays principle and Extended Producer Responsibility. This would help ensure that the producers of harmful products are paying for remediation measures, instead of putting the burden on taxpayers, which is too often the case according to the European Court of Auditors [2].

Developing a financial EU scheme aimed at polluting industries would allow to tackle diffuse pollution, especially considering that water flows and that polluting industries tend to be concentrated in specific locations, by ensuring fair contribution from industries and an equitable repartition to support Member States in taking additional measures where needed.

IN PRACTICE

France, environmental taxes on industrial discharge to finance environmental protection practices

In France, water agencies collect charges from different users, including on water pollution (see example). These resources are normally used to support communities and users and improve practices (reduction of pollution, water protection, water availability and quality, etc.), according to an intervention programme spread over 6 years (see examples). These charges are additional to the tariffs industries pay to the WWT operators, based on the quality/quantity of their discharges in common sewage network.

As long as the resources collected are ring-fenced for interventions related to the protection of water resources, these charges can allow to implement a fair contribution of all users to the financing of environmental actions, as a common good everybody benefits from.

However, in the French experience, past a certain threshold of levied charges, the exceeding amount is transferred to the State and can be used for something unrelated to water. An amount is also levied from each agency, depending on its resources and population, to finance the National Biodiversity Office, a body which manages issues including actions to preserve biodiversity but also hunting regulation, and may itself be levied for unrelated purposes.

2. FOSTERING CLIMATE ADAPTATION THROUGH INTEGRATED PLANNING AND GREEN SOLUTIONS



AQUA PUBLICA'S KEY MESSAGES

- Sewage management responds to multiple purposes and social functions
- Integrated planning at local level and coordination of all actors is key
- Green solutions can provide many benefits at low cost and should be promoted where feasible, in line with the EU Biodiversity Strategy
- Conditions such as deadlines and governance define the availability of different solutions (green/grey)
- Rethinking urban spaces contributes to increased climate resilience

Wastewater treatment is only part of a wider system for the management of rainwater, which affects land use globally, yet operators often end up with this responsibility due to a lack of a governance framework. Effective protection of the environment, especially in a changing climate – with changing rain patterns – as well as considering wide differences across European regions in terms of geography, climate and weather, requires coordination and adequate planning at local/regional level, with the involvement of all actors.

An obligation to develop integrated planning at local level, enshrined in the Directive, would create a framework where local authorities can define the most appropriate strategies, taking into consideration climate change and depending on their contexts and needs of the water bodies, in a pluridisciplinary way (with urban planners, real estate developers, water operators, etc.) and the most cost-effective, politically feasible mix of solutions, as well as new and multidisciplinary approaches in the design of surface systems for both new urbanisations and modifications of existing urbanisations.

Regarding the specific question of urban runoff, it should be highlighted that obligations to retain and treat the first rainwater risk leading to the need to separate networks, which is costly and complex. An alternative, more cost-effective approach would be to prioritise reduction of pollution concentration.

Furthermore, taking measures to limit the amount of water in the sewer network based on meteorological and soil data helps both reducing the risk of overflow into the receiving water body and avoid that rainwater is mixed with pollutants, thus preserving its quality.



Brussels, Belgium

Such an approach would also facilitate a more equitable budget, through which actors responsible for increased pressure on sewers, due to soil sealing, can contribute accordingly.

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Coordination could also facilitate the reuse of existing infrastructures for brownfield applications where the implementation of new infrastructure might be difficult (grey-green solutions).

Finally, sewers and WWTP are the bottleneck of the system: climate change must be faced upstream, with dams and lamination basins to be used as reservoirs for drinking water, industry, irrigation and energy production. As it may not be possible or be too expensive to separate sewage sewers from stormwater, stormwater can be used as an opportunity to clean sewers from problematic fats and other pollutants inside sewers, and can then be collected and treated.



IN PRACTICE

Paris's Plan ParisPluie

With the objective to reduce, at the source, the volume of water that reaches the sewer system and the Seine river, and with the ambition to allow swimming in the river, the City of Paris's service in charge of waste water management developed the ParisPluie plan, integrated in the 'Local Urban Planning Plan'.

ParisPluie is an ambitious strategy that establishes a zoning of the city, based on the characteristics of the soil and the waste water treatment network. The zoning, applicable to new built or redevelopment of public or private space, determines a certain volume of rain water that should not be rejected to the sewer system per 24 hours ("abatement").

The cost-benefit analysis over 20 years shows that cost of implementation is estimated at about 340M€ and the benefits around 1.350M€.



Turin's grey-green solutions

Following an unusually intense storm in 2016, the city of Turin was flooded, the drainage collectors had not been able to dispose the huge and unpredictable amount of precipitation concentrated in a couple of hours, with the area most affected, Borgo Dora, which collects water from buildings, waterproofed road surfaces, and adjacent streets and squares.

To prevent this scenario from happening again, SMAT launched a project with the Polytechnic of Turin and the Department of Environmental, Territory and Infrastructure Engineering, to improve drainage in a densely populated area by reusing existing infrastructure.

The large network of underground channels used in XIX – XX century when flowing water was used in Turin as driving force for manufacturing, was put in service again. A series of interventions to adapt the drainage system followed based on a hydraulic model of the network. The interventions, which costs around €1.3 million allowed to avoid flooding later during the wettest month in 60 years.

3. NATURAL BOUNDARIES AS THE GUIDING COMPASS



AQUA PUBLICA'S KEY MESSAGES

The priority for wastewater treatment should be the environmental quality of the receiving water

Alignment and clear reference to the objectives of the Water Framework Directives are necessary

Investments in wastewater treatment have to be targeted where they have most impact on water bodies

New requirements need to include exemptions in case there is limited or no effect on the environment

By outlining requirements for treatment so that water is returned to nature safely, the UWWTD contributes to the objectives of the Water Framework Directive (WFD).

To meet this objective, it is therefore essential that new measures consider the interaction between both Directives, in particular because water bodies have varying capacity to handle pollution loads, depending for example on their size or flow.

The new UWWTD must clearly refer to the WFD objectives and the provisions must coherently ensure that additional action – for pollution treatment or management of overflows - is taken when there is impact, taking a risk-based approach with exemptions if the status of the water body is not affected.

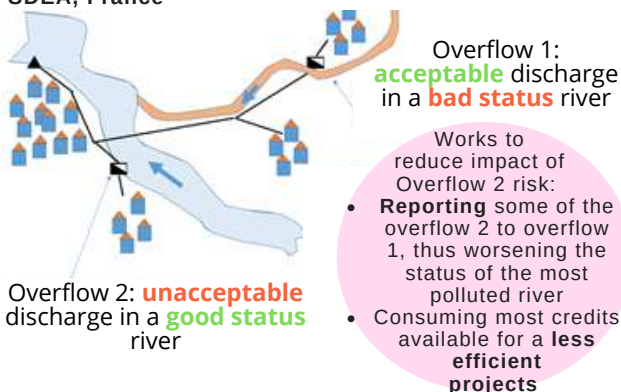
Investments by wastewater treatment operators need to be prioritised where there are most efficient and needed, also considering a wide investment gap.

When there is a need to choose between complying with the objectives of the WFD or the UWWTD - for lack of sufficient funding – authorities risk prioritising increased treatment as per the UWWTD, even if there is no real impact in the water body, but because of stronger enforcement from the EU, leading to infringement procedures and fines.

This conflict has counterproductive results on environmental status, which should remain the priority.

IN PRACTICE

SDEA, France



In the province of Badajoz, Spain, the local waste water operator PROMEDIO – operating in small agglomerations outside of the scope of the UWWTD across two river basins – faces requirements imposed by two different river basin authorities, both using different criteria (based on the WFD or on the UWWTD for larger agglomerations) in the absence of an EU approach.

Impact of the small WWTP on the water body (NH₄, TN, TP) is relatively low but requirements still entails high costs: investment cost to remove nutrients in a small WWTP is around 50 % higher than the cost to remove organic matter and suspended solid, whilst O&M cost is around 30 % higher.

4. ACHIEVING THE HUMAN RIGHT TO SANITATION THROUGH LOCALLY ADAPTED MEASURES



AQUA PUBLICA'S KEY MESSAGES

Most adapted solutions for wastewater treatment depend on local conditions (density, climate, geography, etc.)

One-size-fits-all measures would risk impacting economically lower-density areas

Controlled and monitored IAS provide flexibility but rustic and nature-based solutions should also be considered

Cities can play a role by deploying public toilets

The new Directive should contribute to increasing access to sanitation throughout the EU for social, health and environmental benefits.

While lowering the threshold for “small agglomerations” could be an option to also help prevent uncertainty by providing clear requirements, it is critical to keep in mind, when doing so, that under 2000 p.e. there is a wide diversity of situations and include the possibility for derogations based on the WFD and on local level control.

Solutions for wastewater treatment can be very different depending, among others, on geography, population density and climate. In some areas, particularly rural or remote, connection to a centralised system may not be the most cost-effective or technically appropriate solution. It is therefore important to avoid one-size-fits-all solutions that risk generating proportionally higher economic burden per capita, while also having negative climate impact related to new construction.

Individual appropriate systems (IAS) should be maintained, as they provide flexibility, but be controlled by authorities from the conception and the allocation of permits, to regular inspections and reviews, based on EU standards (and CE marking).

Nevertheless, as these standards may not always sufficiently address local needs, they should be considered in combination with locally adapted approaches, controlled by the responsible authority, and including more rustic and nature-based solutions, which have the potential to reach good treatment quality levels.

IN PRACTICE

The City of Paris has deployed 435 public toilets cabins around the city, accessible for free. In 2019, there were over 15 million visits [\[more info\]](#)



Examples of wastewater technologies to achieve the Emission Limit Values in small agglomerations (Promedio, Spain)



Sequential batch reactor



Artificial wetland with hydrolytic anaerobic digester to remove nitrogen



Rotating biological contactor



Compact extended aeration

5. WASTEWATER TREATMENT & THE SUSTAINABLE TRANSITION



Greenhouse gas emissions Reducing climate impact implies the need to consider greenhouse gas emissions related to different measures – the most emitting activities are related to construction (plant upgrades, new connexions, etc.). Starting with an evaluation of the emissions would allow to gather information for future decision-making.

Energy efficiency objectives need to consider that energy consumption is connected to geographical conditions. It is also important to consider the use of renewable energy. Energy efficiency objectives should have a gradual approach for WWTP, starting with energy audits to identify plants' potential for energy savings and support and incentivise voluntary commitments as, for instance, the adoption of an ISO 50001 Energy Management system.

In addition to their primary mission to treat water and return it safely to nature, wastewater treatment plant operators have the potential to contribute to climate action and circularity. New measures need to consider that there can be trade-offs between different objectives (more treatment can use more energy, for example). New provisions should therefore be realistic and allow sufficient time for implementation, while also taking into account that it might be technically and financially more difficult for smaller plants.

Circular economy The main issue for the circular economy remains the absence of a stable outlet market for products recovered from wastewater and sludge treatment. A positive step would be to promote effective end-of-waste for wastes/products generated from the waste water processes, such as different kind of sludge, hydrochar or biochar, ashes, cellulose, sand, and incentivising the re-use of materials. The reuse of sludge in agriculture should remain an open possibility, with revised standards to ensure safety. Many different destinations and treatments are now available and should be encouraged. The circular economy will also be facilitated by the reduction of pollution at the source. The new UWWTD should be coordinated with the Sewage Sludge Directive (and other waste policies).

Digital solutions are encouraged but should consider all costs, including: equipment and human resources needed; risk of lock-in; costs for analysis/consulting. In remote areas, it is also important to take into account a possible lack of communication infrastructure.

Wastewater surveillance is a strategic instrument for public health decision making and the new European Commission Recommendation is welcome as it provides a frame for surveillance systems. It is however important to consider the contribution of the wastewater sector to health decision making is complementary and should not be financed through water bills.

IN PRACTICE

VIVERACQUA
COSTORI, IDRICI DEL VENETO

Viveracqua (Veneto region, Italy) As a follow-up to the Horizon 2020 project SMART-Plant "Scale-up of low-carbon footprint MATERIALS Recovery Techniques in existing wastewater treatment PLANTS", operators in the Veneto region invested €30 million in the upgrade of a waste water treatment plant, half of it dedicated to circular economy aspects, including phosphorus recovery, cellulose filtration and bioplastic production. However, the infrastructure was only partially built, leaving out an estimated investment of €1.5million, due to the uncertainty about outlets for products.

VIVAQUA

VIVAQUA (Brussels, Belgium) developed a pilot project based on bio-thermal energy, with a system of heat recovery from waste water that can be implemented, through the placement of a heat exchanger, on the occasion of the rehabilitation of sewers at a low cost. The system allows to heat and cool buildings. It is estimated that if 20 km of heat exchangers are installed over the next decade, about 26.000 tons of CO₂ will be saved each year. [\[more info\]](#)



Scottish Water (UK) launched, in September 2020, its 'Net Zero' Routemap, a comprehensive approach to achieve net zero emissions by 2040 for the ensemble of waste water operations and taking into account operational emissions and those generated by investment activities. The ambition is to address emissions comprehensively, across five key areas – electricity, processes, gas, transport and travel and investment by aiming to operate all assets (including 239 water treatment works and 1827 waste water treatment works) using renewable power; carry out the transition its entire fleet of vehicles; reduce the carbon intensity of its £700m a year investment by 75%, with a similar reduction in its supply chain, by adopting zero emissions design and using low carbon construction materials [\[more info\]](#)

6. GOVERNANCE AND POLICY COHERENCE



Transparency should be encouraged. Requirements should include key simple information relevant for citizens regarding their local WWTP and the receiving water body. Technical or too specific information represent little usefulness for the general public and could even create unnecessary alarm.

At the same time, oversimplification risks being counterproductive. Interested parties can access the specific information they need online or upon request.

Wastewater treatment is at the crossroads of many policies. The new UWWTD's provisions and definitions should be fully coherent with the existing body of legislation to provided legal certainty, including the Water Framework Directive, the Sewage Sludge Directive, the Industrial Emissions Directive, as well as the EU Green Deal.

Amongst others, definitions need to be streamlined across the board, including by providing more clarity, or guidance, on the scope of an "agglomeration".



The members of Aqua Publica Europea hope that this contribution can be of use in the development of a legislative proposal, and encourage the Commission to table a balanced text that fosters a resilient wastewater treatment sector and the sustainable protection of the environment.

References

- [1] OECD (2019), Pharmaceutical Residues in Freshwater: Hazards and Policy Responses, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/c936f42d-en>
- [2] European Court of Auditors, Special Report 12/2021: The Polluter Pays Principle: Inconsistent application across EU environmental policies and actions, July 2021: https://www.eca.europa.eu/Lists/ECADocuments/SR21_12/SR_polluter_pays_principle_EN.pdf

About Aqua Publica Europea

Aqua Publica Europea is the European Association of Public Water Operators. It unites publicly owned water and sanitation services and other stakeholders working to promote public water management at both European and international level.

Aqua Publica Europea is an operator-led association that looks for efficient solutions that serve the public rather than corporate interests.

Our members

