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EXECUTIVE SUMMARY OF THE EVALUATION

of the Council Directive 91/271/EEC of 21 May 1991, concerning urban waste-water treatment

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EXECUTIVE SUMMARY

The Evaluation is based on a comprehensive literature review, including European Court of Auditor reports, implementation reports, the European Environment Agency's work, scientific studies and grey literature. Stakeholders were closely involved throughout the process: in addition to a 14-week public consultation, four expert workshops and a stakeholder conference were held. In addition, the Joint Research Centre modelled the effects of the Directive. In parallel, in cooperation with the OECD, the investment needs of the EU water supply and waste water sector and financing strategies for the sector were analysed.

The assessment of the Directive's **effectiveness** shows that it has been successful in reducing loads of the targeted pollutants from urban point sources (domestic/urban waste water and similar industrial pollution). Loads of biochemical oxygen demand, nitrogen and phosphorus in treated waste water fell across the EU by 61%, 32% and 44% respectively between 1990 and 2014. This has clearly improved the quality of EU water bodies. The Directive is also the main factor to ensuring that the EU's bathing water sites are safe and through the required treatment it reduces a number of non-targeted chemicals. Despite overall high levels of compliance at the time of the Evaluation, the implementation process was significantly delayed in some Member States, while a few Member States are still lagging behind. As shown in *Figure 1*, the remaining loads from urban sources come largely from **non-compliant agglomerations**.

The **main barriers to implementation** include Member States not prioritising the necessary investments in time to meet the deadlines, with problems often stemming from governance arrangements at central, regional and local level and, in particular, lack of resources and administrative capacity. To steer the implementation, the Commission provides **support** through funding, research and innovation programmes, and compliance promotion activities, whilst also conducting infringement procedures, whenever appropriate. The implementation of the Directive requires substantial and continuous investments in infrastructure. Its implementation is strongly supported by EU cohesion policy (EUR 38.8 billion for the waste water sector since 2000). Preliminary OECD estimates show that an additional EUR 253 billion has to be spent in the EU until 2030 to maintain or achieve full compliance. At the same time, Member States do not invest sufficiently in the renewal of infrastructure. To finance implementation, most Member States use a mix of water tariffs and public budget transfers. Water management in the EU is typically based on public and delegated private management models, with the water infrastructure generally being owned by public authorities. Whereas households are usually charged through the water bill, full cost recovery has not been achieved in the majority of the Member States. Under Article 9 of the WFD it is acceptable that households are supported through social schemes or subsidies. Water **affordability** can be an issue, which can be addressed nationally or locally by establishing social tariffs, or through other specific support.

One of the key reasons for the Directive's **effectiveness** is its overall **clarity and the simplicity of its requirements** allowing for straightforward enforcement. Nevertheless, it has not optimally addressed some important pressures in relation to waste water and that lead to remaining loads that could be avoided (see also *Figure 1*):

1. **Storm water overflows,** a sizeable remaining source of loads, are referred to only in a footnote in the Directive. The Court of Justice of the European Union has pointed out the need to develop guidance in this area. **Urban runoff**, which is only covered by the Directive in connection with combined sewage, is an increasingly important source of pollution, and may contain heavy metals, plastics and microplastics. The loads from these two sources are increasing due to, among others, heavy precipitation becoming more frequent and intense under the changing climate.
2. Other remaining sources of loads result from the use of potentially mal-functioning **individual or other appropriate systems**. The Directive allows the use of these systems where a collection systems comes at disproportionate costs, and as long as these individual systems achieve the same level of environmental protection. But it is not clear on the extent to which this provision can be applied and how the functioning of these systems should be monitored.
3. Those **small agglomerations** or non-connected dwellings not completely covered by the Directive constitute a significant pressure on 11% of the EU's surface water bodies.

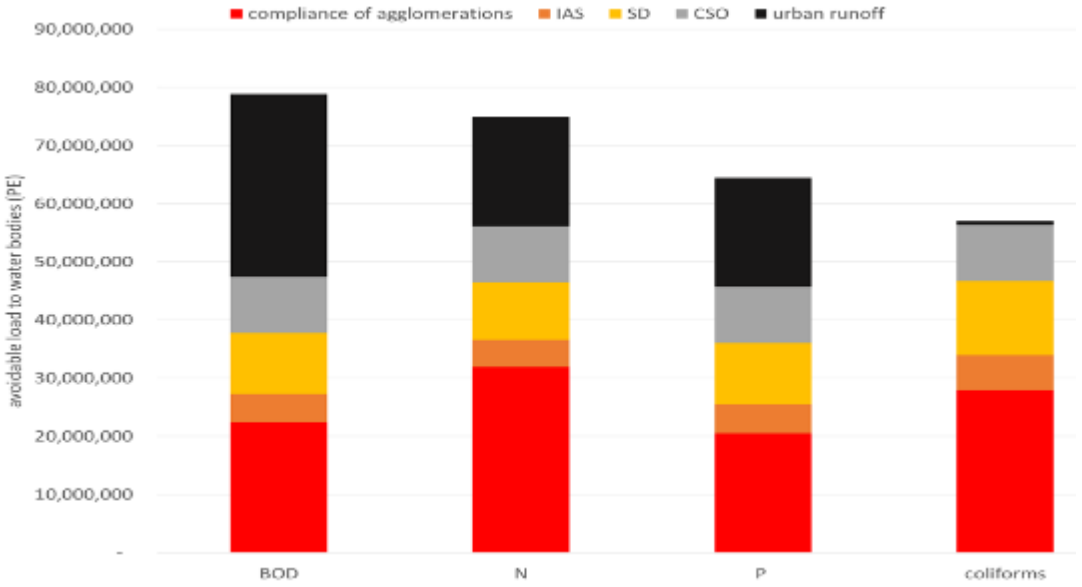

Figure 1 Remaining loads that can be avoided (SD=agglomerations <2 000 p.e., CSO=combined sewer overflows, IAS=individual or other appropriate systems); As comparison, the total urban waste water generated is about 612 mio p.e. Source: Pistocchi et al., 2019.

Another problem is that Member States seem to apply the criteria for identifying 'sensitive areas' differently, especially in the context of **eutrophication** and nutrient management. Although the Court intervened and established a definition, the assessment of 2014 reporting shows that Member States still have different approaches to designating these areas. Tackling these remaining sources of pollution and clarifying some provisions would enable benefits to be maximised, building on the already significant achievements in waste water collection and treatment.

In view of technological progress, some of the Directive's provisions on information gathering and dissemination are less effective today than when it was adopted. **Monitoring** under the Directive has proven effective to demonstrate compliance. However, over time, research and innovation outcomes enable advances in monitoring methods allowing more efficient and accurate monitoring of both existing and emerging pollutants. A number of Member States – depending on local conditions – set stricter emission limit values than those minimum requirements set in the Directive. Further research is required to establish whether the provisions on e.g. the frequency of sampling

provisions at waste water treatment plants to demonstrate compliance under the Directive are fit for purpose.

Although the **reporting** requirement has improved knowledge of waste water collection and treatment in the EU, some of these provisions are now outdated, compared to what might be achieved by using digital technology. The Directive requires that Member States provide situation reports to keep the public informed. This has led to divergences in practice across the EU, and it is not always the case that relevant information is always made readily available to the public in a clearly comprehensible form. Since waste water collection and treatment account for about 60% of the water price, and the public consultation shows that the public are generally interested in both collection and treatment costs as well as investments, providing this type of information would be important.

In this Evaluation, the use of well-established cost functions enabled comparably robust assessments to be made of the implementation costs. Assessing benefits was more complex, as only some of them can be quantified and monetised. The **efficiency** analysis shows that even with very conservative assessments of benefits, the benefits outweigh the costs. Total EU capital and operation costs are estimated at EUR 18 billion p.a. in the EU, while (the quantifiable part of) benefits is estimated to amount to EUR 27.6 billion p.a at current implementation levels. Through its provisions on individual and other appropriate systems, the UWWTD includes a flexibility mechanism that allows taking into account local conditions and avoid cost ineffective investments. Whereas costs are incurred by users (e.g. households, some industries), benefits are of the advantage not just of users, but of a variety of stakeholders downstream, which might be in another region or Member State. **Administrative costs** are negligible compared to the capital and operational costs. In particular, the administrative burden linked to the monitoring and reporting requirements appears to be between low and moderate. Most of the costs are borne by Member States, their competent local authorities and the Commission.

The assessment of **coherence** shows that the Directive is **internally coherent** overall. The UWWTD works overall in synergy with **other EU water law** and contributes strongly to achieving the objectives of the Water Framework Directive, the Bathing Water Directive and the Drinking Water Directive. There are some limited overlaps in terms of what activities are covered by the UWWTD compared to the Industrial Emissions Directive. In general, there are also no issues of coherence with newer EU polices; **however, there may be some scope for improving the coherence of the UWWTD and climate and energy policies, such as the energy efficiency directive**.

The analysis of **relevance** and effectiveness shows the need for continued intervention not least because inappropriately treated or untreated urban waste water is still one of the main reasons why EU waters fail to achieve at least good status under the Water Framework Directive. Moreover, the scientific community, policy makers and general public see the growing evidence of **contaminants of emerging concern**, including pharmaceuticals and microplastics, in water bodies, as an increasingly important issue. The need for action on pharmaceuticals and microplastics was also noted in the Commission's 2019 Strategic approach to pharmaceuticals in the environment and its 2018 Plastics strategy. Plants covered by the UWWTD also receive significant amounts of industrial waste waters containing a range of chemical pollutants. Overall, the treatment required under the UWWTD reduces such pollutants of waste water to some extent, but does not target them directly. Some countries already have additional treatment in place, for instance Switzerland requires its priority plants to tackle micropollutants by 2040.

As regards **circular economy** potentials, the UWWTD contains limited provisions on waste water and sludge reuse or recovery of valuable components. These have never been strictly enforced, partly due to the lack of strong harmonised standards at EU level and the potential risks to human health. The adoption of the Commission proposal on water reuse will create further incentives to reuse water. Sludge reuse in agriculture is governed by the 1989 Sewage Sludge Directive, but over the past decades, Member States have either set stricter requirements than those imposed by the Directive or have simply banned sludge use in agriculture on public health grounds. The removal of pollutants from waste water can lead to polluted sludge and there is a risk of spreading these pollutants if contaminated sludge is used for agricultural purposes. Control at source of targeted pollutants would reduce treatment requirements. With regards to energy, the annual energy consumption of the waste water treatment sector is estimated at 0.8 % of all energy consumed in the EU. This is contrasted by a number of WWTPs in the EU being re-designed to be energy producers. The UWWTD and other EU water legislation have also created a strong basis for innovation. At the time of the Evaluation, eight out of the top 15 worldwide water businesses were based in the EU, showing clearly the global business leadership of this sector.

Lastly, the **EU added value** assessment, which included considering whether the UWWTD complies with the subsidiarity principle, shows wide recognition among stakeholders that the Directive is still needed, and that withdrawing it would have negative impacts. The Directive supports the protection of some 60% of EU transboundary water basins from the adverse effects of waste water discharges.

In the future, more attention should be given to both existing and emerging sources of pollutants with regards to environmental and human health perspectives, and, from the socio-economic perspective, to both sustainable investment strategies and affordability. To achieve this in a global and climate change context, continuous research and innovation efforts and investments are needed, in particular to develop advanced and resilient treatment and monitoring solutions, to enable cost-effective management of micropollutants and to better integrate circular systems for water/sludge reuse and recovery of components.