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Overflows from collecting systems

Summary

Waste water collecting systems are a vital part of the urban environment across Europe. They provide drainage, which protects public health, prevents the flooding of property and protects the water environment around urban areas.

Today, many waste water service operators, represented by EurEau, are responsible for the design, construction, operation and maintenance of collecting systems. Historically, a wide variety of institutional and technical arrangements for collecting systems developed across European cities, making local level management of collecting systems necessary.

On some occasions collecting systems will overflow into the water environment during heavy rain, as they are designed to do with the intention of preventing flooding and risk to people and property. Some overflows may cause unacceptable impacts on the environment that have to be addressed. Changes in rainfall patterns with increasing storm intensities, urban development and pollution will further affect future operation of collecting systems.

We recognise many opportunities to make urban environments, from small towns to large cities, more sustainable through the management of waste water flows and storm water. We also acknowledge the significant financial responsibilities that are associated with making changes to the network of collecting systems.

EurEau urges a range of actions from policy and legislation, local-specific urban planning and innovation to ensure that overflows from collecting systems are managed in a sustainable manner. We do not support target performance values set at EU level to address overflows from collecting systems.

We invite you to read on.





1. Background

All cities, towns and urban areas require the collection and treatment of waste water from buildings, and management of storm water¹ which flows after rain fall or snow melt. Collecting systems are the network of drains, manholes, pipes, sewers, tanks and conduits which gather and convey waste water and on occasion storm water to a treatment facility.

Collecting and draining waste water and storm water is vital service which protects public health, prevents the flooding of property and protects the water environment around urban areas. Proper collecting systems enable urban areas across Europe to thrive.

Some collecting systems have separate pipes for storm water and waste water ('separate systems'), whereas other collecting systems combine both storm water and waste water in the same system of pipes ('combined systems'). Historically, collecting systems were constructed as urban areas developed, and typically, older towns/cities tend to have combined systems.

Combined systems incorporate overflow devices ('combined sewer overflows' or CSOs) to ensure that when storm water flows are high, the excess flow can spill into a receiving water body at a designated location, ensuring that sensitive environments, public places and property are protected. CSOs are part of the normal operation of combined collecting systems, with the intention of preventing spills and flooding at undesirable locations or overloading of waste water treatment plants (WWTP). Overflow events are, by their nature, intermittent local discharges, which are weather dependent.

Today, there are hundreds of thousands of kilometres of collecting systems across Europe and we estimate there are in excess of 650,000 CSOs², all providing the vital service of draining waste water and storm water.

Many EurEau members are responsible for the construction and maintenance of waste water collecting systems. EurEau members recognise that CSOs must be properly designed and maintained to prevent flooding and minimise adverse impacts on the water environment and protect public health.

¹ 'Storm water' is the term given to all the water which flows off impervious ground into collecting systems. Storm water comprises rain water and snow melt water and may carry other substances with the flow. Storm water mixes with the contents of collecting systems.

² 650,000 is an estimated number, based on the experience and observations of EurEau members (for clarity, it is not a quality controlled statistic).



2. Some challenges presented by overflows from combined systems

Discharges from CSOs sometimes have a detrimental impact on the status of water bodies and upon the achievement of “good ecological/chemical status” as required by the EU Water Framework Directive and with the requirements of other European directives such as the bathing waters and habitats directives. The characteristics of the receiving water bodies must be taken into account during the planning and design, construction, operation and maintenance of CSOs in order to ensure that intermittent discharges do not have undesirable impacts.

Urban development around towns and cities across Europe has resulted in an increase in the impervious area within the urban environment. This results in an increase in water running off impervious areas and into collecting systems in times of rainfall i.e. storm water flows in collecting systems can fluctuate significantly. This trend in urban development puts considerable stress on the capacity of combined systems, resulting in overloaded sewers and increases in discharge frequency and duration from CSOs.

In some places across Europe, weather patterns are shifting. Increased intensity of rainfall events is an emerging trend which results in more storm water runoff entering collecting systems over a short period, which leads to overloading of the combined system and subsequent discharges from CSOs. The water sector is facing a considerable challenge adapting existing (often historic) collecting systems to the effects of a changing climate.

Often there is a presumption that separate sewers are a solution to the challenges of CSO discharges. However, our experience suggests separate systems have other challenges that must be addressed, e.g. pollution and misconnections. Additionally, separate systems cannot easily be retrofitted into urban areas with existing combined systems. Our challenge as operators is to find the best solutions for all types of collecting systems.

It is neither economically nor environmentally feasible to construct combined waste water collecting systems to deal with large or increasing amounts of storm water. If the impacts of intermittent discharges from CSOs are to be reduced, a range of solutions must be considered. **The priorities for action must be agreed at the local, regional or Member State level. At the same time, the costs of action must be acceptable and affordable and set within the context of investment plans which are financed and implemented at the local or Member State level.**



3. Current European legislation and future policy direction

CSOs are addressed by current legislation as follows:

- a) Requirements of urban waste water collecting systems are set out by the Urban Waste Water Treatment Directive 91/271/EEC (UWWTD) in Article 3 and Annex 1(A) and a footnote (1) of Annex 1(A) stating that: *"The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding:*
- limitation of pollution of receiving waters due to storm water overflows"

and

Annex 1(A) footnote (1): "Given that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, Member States shall decide on measures to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year."

- b) Requirements to meet good ecological status of all waters by 2015 are set out by the Water Framework Directive 2000/60/EC (WFD). CSOs are considered in several river basin management plans (RBMPs) as a pressure causing a serious impact on the receiving waters.
- c) The Bathing Water Directive 2006/7/EC (BWD) addresses the CSO impacts by classifying the bathing waters affected by CSOs as "subject to short-term pollution". Short-term pollution means microbiological contamination which has clearly identifiable causes, is not normally expected to affect bathing water quality for more than approximately 72 hours after the bathing water quality is first affected and for which the competent authority has established procedures to predict and deal with.

EurEau observes that the UWWTD is a foundation, which establishes a shared requirement for collecting systems across the European Union.

EurEau finds that, due to the complexity of urban pollution management, it should be for each Member State to decide the approach to managing collecting systems, based on local conditions and priorities. Thus we do not support target performance values for collecting systems being set at the EU level. Decision making by Member States in relation to collecting systems fits with the principle of subsidiarity.

EurEau members are committed to reducing the impact of CSOs on the aquatic environment and meeting the requirements of the WFD and other



directives including those for bathing waters. We expect that, where necessary, the requirement for improvements to CSOs will be included in the WFD Program of Measures as an integral part of River Basin Management Plans.

EurEau welcomes innovative ways to divert rain water away from urban waste water collecting systems (for example through sustainable urban drainage systems (SUDS)) to watercourses or for rain water to be collected for reuse (after necessary treatment). We welcome the discussion of policy initiatives in this area.

EurEau urges actions that separate storm water at source and attenuate flow rates. For example we urge urban planners to consider the impacts of urban development on combined systems and support the promotion of SUDS to reduce and delay flows and discharges into combined systems. The introduction of SUDS schemes should be considered as part of any development planning process. When properly designed and installed, taking account of the sewer catchment flows, SUDS can help to reduce the frequency of CSO discharges and offer added benefits in reducing diffuse pollution. SUDS also provide new habitats such as ponds and lakes retaining storm water upstream, which contribute to a 'good quality of life in the city'. It is important that the costs (including maintenance) of these systems are properly allocated according to local institutional arrangements. EurEau urges the use of flood control measures upstream of the combined system to prevent and reduce the risk of overloading collecting systems and WWTP. We support increasing the use of permeable surfaces in urban areas, properly planned and designed rainwater and storm water management systems and urban flood defences. This integrated approach will protect the water environment and public health and minimise the frequency of CSO discharges.

EurEau is committed to supporting control at source to ensure that combined systems have minimal impact on the water environment. You can find out more about our positions on *Micropollutants and the control at source approach*³ and [Toilets are not a bin!](#) on our website. EurEau will continue to promote source control to prevent pollution.

EurEau supports innovation in technology to enable the optimal management and performance of collecting systems. For example storm water retention in sewers (e.g. retention tanks or on-line retention gates) and treatment facilities in CSOs such as screens or net bags, all of them in coordination with the WWTP. EurEau welcomes the use of real time management of storm water flows in sewers in order to maximise capacity and minimise impacts on the water environment. EurEau welcomes the use of modelling techniques to enable decision-making by all the authorities responsible for collecting systems.

³ This position paper will be available on our website in June 2016.



EurEau will continue to raise awareness of the complex issues related to the management of collecting systems and CSO discharges. Our members will continue to invest progressively in sewerage improvements which are sustainable, practical and affordable and reflect the priorities of customer and stakeholders. EurEau members will also continue to invest heavily in the operation and maintenance of the 2.2 million kilometres of existing sewerage systems in Europe and would welcome more research and development to ensure best value and sustainable outcomes.

About EurEau

EurEau is the voice of Europe's water sector. We represent drinking and waste water service providers from 28 countries in Europe, from both the private and the public sectors.

Our members are the national associations of water services in Europe. At EurEau, we bring national water professionals together to agree European water industry positions regarding the management of water quality, resource efficiency and access to water for Europe's citizens and businesses. The EurEau secretariat is based in Brussels, from where we coordinate the work of around 150 experts from member organisations and utilities and advocate common positions with EU decision makers.

Our members are fully committed to the continuous supply of clean water and its safe return into the water cycle. We have a role in raising awareness of threats to the water environment. With a direct employment of around 500,000 people, the European water sector makes a significant contribution to the European economy.



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