

# The Hidden Threat to Water Quality, and the Emerge of Opportunities in Advanced Treatment Solutions

**Although not visible and perhaps not widely recognized, globally we stand against a common threat that endangers both our health and aquatic ecosystems — micropollutants. It may be thought that such a threat is undoubtedly being handled by regulators, but currently actions towards reducing micropollutants are lacking and concentrations are becoming more concerning. Policymakers such as the EU are finally beginning to take sufficient measures, but regulations mean nothing if water companies cannot realize their requirements.**

The microscopic contaminants originate from everyday products like pharmaceuticals, pesticides, and personal care items. Despite their low concentrations, their persistence and cumulative effects have sparked concern among scientists and policymakers alike. For example, pharmaceuticals are generally specifically designed to be stable since they must reach target molecules to take effect. To put the issues into perspective, these contaminants and the discharge of pharmaceutical residues challenge at least two of the UN's Sustainable Development Goals to be reached by 2030. These goals are "Clean water and sanitation" (Goal 6) which includes aims to achieve safe drinking water as well as improving water quality, and "Life below water" (Goal 14) which includes aims to prevent and reduce marine pollution of all kinds as well as protecting marine ecosystems.

In most EU Member States, the largest amount of micropollutants enter water bodies through wastewater treatment plants (WWTPs) which is why it is crucial to effectively reduce these contaminants through wastewater treatment before being discharged into the environment. Thankfully, due to modern developed wastewater treatment technologies, it is today possible to remove micropollutants effectively. The process of using these technologies for the removal of micropollutants is often referred to as *quaternary treatment*. However, the incentives to implement these systems have previously been lacking up until now. As the EU soon will introduce new regulations, water companies will be required to implement quaternary treatment systems in their WWTPs which will create

new business opportunities for suppliers of these systems. But three simple questions arise: *where, when and who?*

International market selection is both risky and costly and making a thorough environmental assessment is crucial to making informed decisions, especially in a rapidly changing environment as today. Therefore, suppliers have to carefully study their business environment to be successful in international market selection.

The international regulatory incentives, Level of infringement procedure, Level of additional expenditures, Affordability issues, Priority of quaternary treatment, Projects in quaternary treatment, Compliance with the Urban Waste Water Treatment Directive, Availability of national support in financing, Stage of implementation, and Readiness for implementation, were found to affect the attractiveness of markets since these factors either drives or hinders implementation. Additionally, suppliers should consider the timeframe of investments and market sizes to determine where short-term or long-term strategies are more fitting and to secure revenue streams and growth.

The battle against micropollutants is both a pressing challenge and a promising business opportunity, but it requires dedicated actions from several involved parties, such as the EU, water companies and suppliers of advanced wastewater treatment systems. For real progress, the EU must provide stricter water regulations, water companies must fully embrace and implement new EU directives, and suppliers of advanced treatment systems must deliver these systems. The fight against micropollutants is therefore a shared responsibility, and facilitating actions among any of these stakeholders supports maintaining a healthy future for both humans and animals.

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