



## Innovations and Circular Economy Challenges Faced by Municipal Wastewater Treatment Plants

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### Message from the Guest Editors

Wastewater has still been recently perceived only as used water that should be subject to treatment to protect of the natural environment. The challenges faced in the scope include the search for innovative solutions for a reduction in the use of primary resources toward low-emission and zero-waste economy, with consideration of broadly defined economic and social aspects. A modern wastewater treatment plant is also expected to be self-sufficient in terms of energy and to implement technologies permitting removal from sewage of micropollutants such as pharmaceuticals, pesticides, or microplastic.

The purpose of this Special Issue is to present the wastewater treatment plant as a multiplatform sustainable biorefinery that recycles organics, recovers energy, heat, and valuable resources such as phosphorus, nitrogen, poly- $\beta$ -hydroxybutyalkanoates, alginates, rare earth elements, cellulose, or water, while undertaking measures aimed at minimizing the occurrence of contaminants of emerging concern in the recovered resources and treated wastewater, and using life cycle assessment (LCA) in the assessment of the undertaken measures.





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