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Lecture title: **Constructed Wetlands for sustainable wastewater treatment**

Abstract

The technology of Natural Treatment Systems, i.e., Constructed Wetlands is today a widely applied and growing alternative for sustainable wastewater management. Wetland systems are able to transform and/or eliminate various pollutants in wastewaters (organics, nutrients, trace elements, microorganisms etc.) through a series of physical, biological and chemical processes, thus improving water quality. At the same time, these systems provide a series of economic benefits and ecosystem services, which change the approach of wastewater management as we know today following the concept of sustainable engineering and circular economy. This lecture gives an overview of the technological status of Constructed Wetlands, discusses the most recent developments in the field and presents selected case studies of this technology of global reference.

Key points:

- Sustainability is a significant parameter in wastewater management
- Natural Treatment Systems such as Constructed Wetlands are an alternative, green option for wastewater management.
- Main design characteristics of Constructed Wetlands and classification.
- Types of Constructed Wetlands and latest optimized designs for high effluent quality,
- Reuse options of treated effluents
- Environmental and economic advantages and disadvantages of Constructed Wetlands compared to conventional/mechanical treatment methods.
- The use of Constructed Wetlands for effective and sustainable treatment of domestic, municipal and industrial wastewater
- Selected international case studies of wetland technology for municipal and complex industrial wastewater treatment.