

Comprehensive Approaches to Waste Management for Sustainable Development

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Abstract: *This article provides a comprehensive exploration of untreated wastewater and its significant threats to environmental and human health. It begins by defining untreated wastewater and examining its ecological consequences, particularly in the context of water pollution and public health risks. The discussion then broadens to explore how wastewater challenges intersect with larger waste management systems. A variety of sustainable and technological approaches including biological, chemical, and decentralized treatment methods are assessed, along with innovative practices like anaerobic digestion, e-waste recycling, and sewage reuse. The article also highlights the role of governance, public awareness, and policy frameworks in shaping effective waste management strategies. Furthermore, it emphasizes the integrated and interdependent nature of different waste management domains, illustrating how treating wastewater supports broader goals such as food security, resource conservation, and climate resilience. The article concludes with practical recommendations for advancing a circular economy model, where waste is viewed as a resource, ultimately promoting long-term sustainable development*

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