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Overview of Indian Solid Waste Management and its Associated Challenges and Opportunities †

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Abstract: India's rapid population growth and urbanization processes without proper infrastructural arrangements make solid waste management (SWM) a demanding task. The lack of inefficiency in the Indian SWM system is evident as more than 70% of the total solid waste is left untreated and dumped. The problems concerned with achieving sustainable waste management in India are discussed. However, the image is often uncertain and unclear with fuzzy solutions since metadata is limited or distributed publicly. India's geographical, climatic, political, social, economic, cultural, and linguistic diversity contributes to the solid waste challenge in India. Indian waste management practices focus on actual waste generation, primary storage, primary collection, secondary collection and transport, recycling, treatment, and disposal activities. The growth of Indian SWM systems taken case by the latest legislation and the initiative such as the Swachh Bharath Mission make a positive impact. Other parameters like cultural & social environment, Public participation, local ecology, and investments play a key role in a sustainable SWM. Circular economy, material Life cycle assessment, waste to energy mapping, and other technological advancements such as real-time collection statistics, dynamic heuristic routing, and internet use bring efficiency in the SWM. Investments and constructive public participation in SWM can positively impact the operation and management of solid waste in India.

Keywords: solid waste management; public participation; circular economy; life cycle assessment.

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Conflicts of Interest

The authors declare no conflict of interest.