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Mumbai's Mithi River : An Environmental Review

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Abstract: *The Mithi River is a major urban river in Mumbai that originates from the overflow of Vihar Lake and Powai Lake. It flows through several densely populated and industrialized areas of the city before ultimately meeting the Arabian sea at Mahim Creek. Rapid urbanization, land reclamation and uncontrolled waste disposal has resulted in severe degradation of the river ecosystem.*

The current review integrates multidisciplinary research findings on the Mithi River focusing on physicochemical characteristics, pollution parameters, biodiversity loss and restoration measures. Physicochemical assessments across several studies reveal deterioration in water quality, with elevated concentrations of BOD, COD, heavy metals, PAHs and low dissolved oxygen levels. Heavy metals such as Pb, Cd, Cr, and Hg, were exceeding permissible limits set by BIS and CPCB.

Several initiatives and studies have been undertaken to monitor, restore, and manage the Mithi River ecosystem. Hydrological and flood management studies employing models such as HEC-RAS, HEC-HMS, SWMM, and DRAINS indicate that bio-drainage and detention ponds can significantly reduce flood vulnerability. Social, architectural, and policy perspectives emphasizes on community-based conservation. Several studies also highlight successful bioremediation by heavy metal resistant bacterial isolates such as Bacillus, Klebsiella, and Acinetobacter spp. Overall, the reviewed studies underscore the urgent need for integrated river basin management combining scientific and social approaches to restore the Mithi River's ecological integrity and promote its sustainable coexistence with the urban environment..

Keywords: Mithi River, Physicochemical, Domestic sewage, Industrial effluents, Heavy metal pollution, Microbial contamination, River restoration

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