

Title : A review of microplastic threat mitigation in Asian lentic environments

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Abstract: [Microplastic](#) (MP) pollution has evolved into a significant worldwide environmental concern due to its widespread sources, enduring presence, and adverse effects on lentic ecosystems and human well-being. The growing awareness of the hidden threat posed by MPs in lentic ecosystems has emphasized the need for more in-depth research. Unlike marine environments, there remain unanswered questions about MP hotspots, ecotoxic effects, transport mechanisms, and fragmentation in lentic ecosystems. The introduction of MPs represents a novel threat to long-term [environmental health](#), posing unresolved challenges for sustainable management. While MP pollution in lentic ecosystems has garnered global attention due to its ecotoxicity, our understanding of MP hotspots in lakes from an Asian perspective remains limited. Hence, the aim of this review is to provide a comprehensive analysis of MP hotspots, morphological attributes, ecotoxic impacts, sustainable solutions, and future challenges across [Asia](#). The review summarizes the methods employed in previous studies and the techniques for sampling and analyzing microplastics in lake water and sediment. Notably, most studies concerning lake microplastics tend to follow the order of China > India > Pakistan > Nepal > Turkey > Bangladesh. Additionally, this review critically addresses the analysis of microplastics in lake water and sediment, shedding light on the prevalent net-based sampling methods. Ultimately, this study emphasizes the existing research gaps and suggests new research directions, taking into account recent advancements in the study of microplastics in [lentic environments](#). In conclusion, the review advocates for sustainable interventions to mitigate MP pollution in the future, highlighting the presence of MPs in Asian lakes, water, and sediment, and their potential ecotoxicological repercussions on both the environment and human health.

Keywords: Microplastic Pollution, Lentic Ecosystems, Lakes, Ecotoxicology, Asia, Hotspots, Sampling Techniques, Sediment Analysis, Sustainable Management, Environmental Health.

<https://doi.org/10.1016/j.jconhyd.2023.104284>

<https://www.sciencedirect.com/science/article/abs/pii/S0169772223001547>