**Waste Management in Kolkata: Hydrological Constraints and Development of Urban Environment**

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***Abstract:***

The process of urban development is often influenced by the local geology and waste management practices of a city. This is clearly evident in the annals of urban development for Kolkata, which highlights the role of local groundwater regime and wetlands in waste management as well as moulding the urban growth for this historical city. The study presented here is initiated by analysis of waste treatment facilities, its distribution and trends of industrial waste using data such as satellite imageries and maps showing the regional drainage distribution and location of sewage plants. Furthermore, it also examines several factors associated with the city’s hydrological system, including the groundwater dynamics through time-series analysis, rainfall patterns, reduction of recharge zones, filling of smaller water bodies and long-term groundwater quality assessments. The observations from this study highlight the pivotal role of wetlands as a natural sink as well as their role in natural treatment processes. It also emphasises on the challenges of wetland reduction and groundwater contamination due to urban expansion and industrialization, which seems to be contributing towards the degradation of local urban environment. In addition to this, the study also tries to suggest possible strategies for wetland reclamation and proper waste disposal through a comprehensive review-based assessment for follow-up researchers in the region.

**Keywords:** Kolkata, Waste Management, Hydrology, Wetlands