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SITE SUITABILITY ANALYSIS FOR INDUSTRY SEWAGE TREATMENT PLANT IN COIMBATORE METROPOLITAN AREA USING GEOGRAPHIC INFORMATION SYSTEM

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Abstract

This study provides one of the first GIS-based industrial wastewater site suitability assessments for the Coimbatore Metropolitan Area. To support the primary objective, the study analysed the characteristics of the study area through field surveys combined with satellite imagery interpretation. Furthermore, various thematic maps, including land-use, slope, and road maps, were prepared to represent key spatial features visually. The study culminated in creating a suitability map, achieved by overlaying the thematic maps with appropriate weights, providing a comprehensive assessment of identified sites based on multiple criteria. High weight has been assigned to distance to water bodies (greater than 1000m), road density (8.41-13.37), and distance to railway tracks. The results of the present revealed that, weight to geology, soil compaction, road density and slope of the study area plays a vital role to identifying the suitable site for wastewater treatment location. Coimbatore lacks a dedicated sewage treatment plant designed explicitly for industrial wastewater. Consequently, our study endeavours to leverage GIS to identify optimal sites for establishing a sewage treatment plant that addresses the wastewater generated by industrial activities within our study area. This approach aims to contribute to the effective management and treatment of industrial wastewater, mitigating environmental impact and fostering sustainable practices in the region.

Key words: Coimbatore metropolitan area, geographic information systems, industry, sewage, site suitability

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