Environmental Remediation Strategies for Industrial Pollution Control in Zambia 2008

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Abstract

Industrial pollution in Zambia's mining sector has led to environmental degradation, necessitating effective remediation strategies. A comprehensive review of existing literature was conducted alongside expert consultations. A multi-criteria decision analysis (MCDA) framework was applied to assess the suitability of various remediation methods based on their efficacy, cost, and environmental impact. The analysis revealed that while traditional techniques such as sedimentation and filtration were effective, they are often costly and have limited scalability. Innovative approaches like phytoremediation and bioaugmentation showed promise in terms of reduced costs and higher ecological efficiency. Based on the findings, a hybrid approach combining both traditional and innovative methods is recommended for industrial pollution control in Zambian mines. This strategy aims to balance cost-effectiveness with environmental sustainability. Implement a phased implementation plan that integrates pilot projects before full-scale deployment. Establish a regulatory framework that incentivizes the adoption of eco-friendly remediation technologies. The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Zambian, Geographical, Remediation, Technological, Sustainable, Ecosystem, Modelling*

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