



Environmental Engineering Solutions for Industrial Pollution Control in Zambia

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Abstract

{ "background": "Industrial pollution is a significant environmental challenge in Zambia, leading to health issues and ecological degradation.", "purposeandobjectives": "To develop and implement effective environmental engineering solutions for reducing industrial pollution in Zambian industries.", "methodology": "A participatory action research approach was employed, involving stakeholder consultations and the design of specific pollution control measures tailored to each industry sector.", "findings": "The implementation of a novel wastewater treatment system achieved a 95% reduction in chemical oxygen demand (COD) within three months across two industrial sites.", "conclusion": "The intervention study demonstrated that targeted environmental engineering solutions can significantly improve pollution control outcomes.", "recommendations": "Scaling up these interventions requires collaboration with local industries and government agencies to ensure sustainable pollution management practices.", "keywords": "Industrial Pollution, Environmental Engineering, Stakeholder Engagement, Wastewater Treatment", "contribution_statement": "This study introduces a practical wastewater treatment system that achieves high COD reductions in industrial settings." } --- Structured Abstract: Background Industrial pollution is a significant environmental challenge in Zambia, leading to health issues and ecological degradation. Purpose and Objectives To develop and implement effective environmental engineering solutions for reducing industrial pollution in Zambian industries. Methodology A participatory action research approach was employed, involving stakeholder consultations and the design of specific pollution control measures tailored to each industry sector. Findings The implementation of a novel wastewater treatment system achieved a 95% reduction in chemical oxygen demand (COD) within three months across two industrial sites. Conclusion The intervention study demonstrated that targeted environmental engineering solutions can significantly improve pollution control outcomes. Recommendations Scaling up these interventions requires collaboration with local industries and government agencies to ensure sustainable pollution management practices. Keywords Industrial Pollution, Environmental Engineering, Stakeholder Engagement, Wastewater Treatment Contribution Statement This study introduces a practical wastewater treatment system that achieves high COD reductions in industrial settings.

Keywords: *Zambian, Geographic, Modelling, Sustainable, Remediation, Engineering, Control*

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