African Coastal Engineering

# Environmental Engineering Approaches for Industrial Pollution Control in Zambia: A Comparative Study

**Chilufya Kalaba**[1]

[1] Zambia Agricultural Research Institute (ZARI)

**Published:** 08 August 2009 | **Received:** 11 March 2009 | **Accepted:** 13 June 2009

**Correspondence:** ckalaba@hotmail.com

**DOI:** 10.5281/zenodo.18893869

**Author notes**

*Chilufya Kalaba is affiliated with Zambia Agricultural Research Institute (ZARI) and focuses on Engineering research in Africa.*

## Abstract

Industrial pollution is a significant environmental challenge in Zambia, affecting both water and air quality. A comparative study approach was employed, analysing case studies from two major industrial sectors: mining and manufacturing. The study identified a 20% reduction in particulate matter emissions when implementing best available techniques (BATS) compared to baseline conditions. Environmental regulations and BATS implementation significantly improve air quality, warranting broader adoption across Zambian industries. Governments should enforce stricter environmental standards and provide financial incentives for companies adopting BATS. Industrial pollution; Environmental engineering; Zambia; Best Available Techniques (BATS); Air Quality Improvement The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Sub-Saharan, industrial ecology, life cycle assessment, sustainable design, green chemistry, water treatment technologies, air pollution control*

# ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

## ✉ REQUEST FULL PAPER

**Email:** info@parj.africa

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** app.parj.africa

Scan to visit app.parj.africa

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge