REVIEWER'S REPORT

Manuscript No.: IJAR-51792   Date: 23 -05-2025

Title: THE CONTENT OF HEAVY METALS (CD, PB, AND CR) IN WATER AND SEDIMENT IN THE MESUJI RIVER, LAMPUNG, INDONESIA

Recommendation:
Accept as it is.................YES.............
Accept after minor revision.................
Accept after major revision ....
Do not accept (*Reasons below*) ....

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality			√	
Clarity		√		
Significance		√		

Reviewer's Name: Tahir Ahmad

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Title Evaluation:
The title accurately and clearly describes the focus of the research, highlighting the specific pollutants studied (Cd, Pb, and Cr), the media analyzed (water and sediment), and the geographical scope (Mesuji River, Lampung, Indonesia). It is informative and relevant to readers interested in environmental pollution and water quality assessment.

Abstract Assessment:
The abstract provides a concise overview of the study, clearly stating the research problem, objectives, methodology, and major findings. It mentions the regulatory framework guiding water quality standards (Government Regulation No. 22 of 2021) and summarizes the seasonal sampling approach and the number of sampling stations. The findings—particularly the observation that metal concentrations are within acceptable standards and the correlation results between water and sediment metal content—are clearly presented. The correlation coefficients (e.g., Pb = 0.801; Cr = 0.822) are appropriately interpreted, enhancing the scientific value of the summary.

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Introduction Quality:
The introduction presents a comprehensive background on river pollution, with a particular focus on heavy metals. It cites a substantial body of prior research and contextualizes the importance of the Mesuji River in terms of ecological and socio-economic value. The inclusion of government regulatory standards provides a policy-relevant framework for the study. Previous research and remediation efforts, such as adsorption and biosorption, are well-documented and establish the rationale for continued investigation into heavy metal contamination. The discussion of pollution sources—both natural and anthropogenic— is well-articulated and supported by references.

Scientific and Methodological Rigor:
Although the methodology is not detailed in the provided text beyond the sampling design and correlation analysis, the study indicates a robust temporal (rainy and dry seasons) and spatial (7 stations) sampling framework. This approach enhances the reliability of the findings and allows for seasonal comparisons. The correlation analysis between metal content in water and sediment is appropriate for assessing transport and accumulation dynamics of heavy metals in river systems.

Data Presentation and Interpretation:
The study effectively interprets the results of correlation analyses. The observation that Cd shows a weak negative correlation, while Pb and Cr exhibit very strong positive correlations between water and sediment, is a valuable insight. These findings suggest differential behavior of the metals in terms of mobility and sediment association, which is relevant for environmental monitoring and risk assessment.

Relevance and Implications:
The research contributes to a growing body of environmental assessments crucial for sustainable river management in Indonesia. Given the essential role of the Mesuji River in local livelihoods and ecological functions, this study provides necessary baseline data for policymakers, environmental scientists, and public health officials. Its relevance is heightened by the inclusion of both seasonal variability and sediment-water interactions.

Overall Evaluation:
This manuscript is well-structured and contributes meaningfully to the field of environmental pollution monitoring. It effectively combines regulatory context, scientific investigation, and applied relevance. The study is comprehensive in its scope and provides clear, statistically supported conclusions regarding heavy metal pollution in the Mesuji River. The work reflects strong scholarly engagement with existing literature and environmental policy frameworks, ensuring its value for both academic and practical audiences.