Review Form 3

Journal Name:	**International Journal of Plant & Soil Science**
Manuscript Number:	**Ms_IJPSS_126415**
Title of the Manuscript:	**Assessment of the Soils and Tailings Multi-element Pollution from the Koma Bangou (Niger) Artisanal Gold Mining Area**
Type of the Article	**Original Research Article**

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript provides valuable insight into the pollution from multi-element contamination in the soils and tailings at the Koma Bangou gold mining site in Niger. It offers an important environmental assessment, shedding light on the pollution levels of heavy metals like As, Cr, Cu, Mn, Pb, and Zn. This data is critical for the scientific community, particularly in environmental science, as it helps in understanding the long-term impacts of artisanal mining on soil health and human safety. Personally, I appreciate this work for its detailed analysis of pollution indices, although more contextual background on local environmental policies would enhance its depth.	
Is the title of the article suitable? (If not please suggest an alternative title)	The title, "Assessment of the Soils and Tailings Multi-element Pollution from the Koma Bangou (Niger) Artisanal Gold Mining Area," is generally suitable but could be more concise.	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract is comprehensive and includes essential details, such as the objectives, methods, findings, and significance of the study. However, it would benefit from briefly mentioning the implications of pollution on human health and ecosystem stability to provide a more holistic view of the study's relevance.	
Are subsections and structure of the manuscript appropriate?	The structure of the manuscript is logically organized, covering necessary sections from introduction to methodology and results. Each subsection flows well, contributing to a cohesive narrative on multi-element pollution and its assessment. 1. Introduction The introduction effectively contextualizes the issue of artisanal gold mining in Koma Bangou, Niger, tracing its origins to the drought and economic hardship of the 1980s. It highlights the environmental and health risks associated with heavy metals, such as arsenic and lead, and emphasizes the significance of assessing pollution in artisanal mining sites. However, the introduction could benefit from a clearer statement about the broader implications of pollution on public health and environmental policy to better capture the study's relevance. 2. Material and Methods Study Area Description: This section provides an adequate geographical, geological, and historical description of the Koma Bangou mining site, including coordinates, geological features, and mineral compositions. The detail on the mining processes, especially regarding cyanidation and acidification, is thorough. However, additional details on the local climate or hydrology might enhance understanding of how pollution disperses in the region. Sampling Strategy: The sampling strategy, utilizing systematic grid and stratified random sampling, is well explained. The diversity in sample types (e.g., perimeter soils, cyanidation area soils, tailings) effectively represents the study area's different pollution sources. However, the section could improve by clarifying how sampling intervals were chosen, which would support the reproducibility of the methodology. Chemical Analysis: This part is clear and detailed, describing the use of both portable XRF and ICP-MS for sample analysis. Calibration and correction processes are outlined, improving confidence in the accuracy of the results. Including a brief rationale for using XRF and ICP-MS would make it more comprehensive, helping readers understand the benefits of these complementary techniques. Pollution Assessment Method: The manuscript correctly uses the Pollution Load Index (PLI) to quantify contamination, referencing relevant studies. The explanation of PLI calculation is appropriate, but a summary table comparing contamination levels across different sites would enhance clarity. 3. Results The results section presents findings from the analysis with clarity, supported by tables and figures that illustrate pollution distribution in the study area. Tables and figures enhance the reader's understanding of the degree and spatial distribution of pollution. However, it would benefit from a short introductory paragraph summarizing the findings before delving into specific data points. Pollution Levels by Sample Group: Each group (acidification waste, cyanidation waste, cyanidation area soils, and perimeter soils) is discussed, with pollution levels detailed by contamination factor. Including more discussion of how these values compare to accepted pollution thresholds (if available) could provide valuable context.	

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	4. Discussion The discussion appropriately interprets the pollution levels observed, attributing them to cyanidation and acidification waste generated by artisanal mining processes. Comparisons to previous studies reinforce the study's findings and validity. To deepen the analysis, consider adding commentary on the implications for local ecosystems or human populations based on observed pollution levels. Comparison with Other Studies: While existing literature is used to validate findings, more references to studies on the health impacts of the specific heavy metals in Niger or similar environments would make the section more impactful. 5. Conclusion The conclusion effectively summarizes the findings and reiterates the anthropogenic origins of pollution at Koma Bangou. However, it might be strengthened by mentioning potential future studies or recommendations for monitoring and managing pollution at artisanal mining sites.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	This manuscript appears scientifically sound, with a robust methodology that utilizes both XRF and ICP-MS data for accurate pollution assessment. The usage of the Pollution Load Index (PLI) for quantifying contamination levels is methodologically appropriate, offering a reliable measure of multi-element pollution. Additionally, the manuscript adequately references prior work, lending support to its findings.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	The references are recent and sufficient. However, adding more sources on the health impacts of heavy metals could provide a deeper perspective on the implications of this pollution.	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language is mostly clear, though minor grammar adjustments could improve readability	
Optional/General comments	Consider emphasizing the health impacts in the discussion to connect findings with broader human and ecological concerns. Review the whole manuscript for English grammar and clarity	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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