Review Form 3

Journal Name:	**International Journal of Environment and Climate Change**
Manuscript Number:	**Ms_IJECC_129152**
Title of the Manuscript:	**Effects of induced biological crusts through ecological engineering on the physicochemical characteristics of degraded soils in West-Central region of Burkina Faso**
Type of the 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.
To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: 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. A minimum of 3-4 sentences may be required for this part.	This manuscript significantly ecological engineering solutions for damaged soils in arid and semi-arid environments like Burkina Faso. Induced biological crusts are a novel and sustainable way to improve soil fertility, which is essential for agricultural production and food security in vulnerable locations. The thorough physicochemical investigations reveal biocrusts' methods of soil improvement, providing vital data for replication and adaption in comparable ecosystems. Finally, biocrusts may reduce land degradation, desertification, and promote sustainable land management, bridging theoretical ecological research with practical applications. But please add **GIS, remote sensing, multi-criteria evaluation (MCE), RUSLE, weighted overlay**	
Is the title of the article suitable? **(If not please suggest an alternative title)**	**Suitable with very little modification …** 1. Ecological Engineering Utilizing Biological Crusts: Effects on Soil Physicochemical Properties in Burkina Faso	
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.	Strengths: The abstract successfully shows the background of land degradation in Burkina Faso and properly specifies the purpose of exploring induced biocrust impacts on degraded soils. It discusses methodology, including split-plot design and studies of physicochemical parameters, while offering particular, quantitative data that reveal enhanced soil attributes. The usage of relevant keywords improves in indexing. Suggestions for Improvement: To promote clarity, the abstract could reduce dense material by describing significant outcomes without overwhelming percentages. Retaining overall trends, like rising nutritional levels, but removing superfluous details would simplify the text. A quick discussion of the relevance of biological crusts in ecological engineering might strengthen the backdrop. Clarifying the relevance of results for land restoration efforts in Burkina Faso is vital. Improving readability with shorter sentences will assist understanding. Revise keywords to include "land restoration" and "soil improvement" for greater relevance.	
Is the manuscript scientifically, correct? Please write here.	Strengths of the work include its scientific significance, since it tackles land degradation in the Sahel by investigating new biocrust uses for sustainable land management. The entire approach integrates a rigorous experimental design with physicochemical studies utilizing sophisticated methods like ICP-OES, guaranteeing trustworthy results. Detailed results extensively investigate the impacts of biocrust treatment on numerous soil parameters, with rigorous statistical analysis (ANOVA and Tukey test) confirming the conclusions. Additionally, the contextual discussion clearly ties the findings to previous research, while the practical implications display biocrusts' potential to boost soil fertility and agricultural output in Burkina Faso. However, there are recommendations for improvement. The abstract may be clearer by reducing wording and stressing crucial facts. The introduction should go more into the unique difficulties of soil deterioration in Burkina Faso and compare biocrusts to established recovery approaches. Enhancing the statistical insights might require a more extensive examination of impact sizes and relationships. Including visual aids such as graphs or charts would assist interpretation of data trends. Furthermore, small grammar faults and odd phrasings need improvement. Finally, considering the long-term viability of induced biocrusts in a climate-variable setting and summarizing major results in the end will enrich the work.	

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Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	Review Suggestions for References: Recent References: While you have included several current papers (e.g., Li et al., 2022; Lankoandé, 2022), some references are over a decade old. Try to incorporate more recent papers (post-2020) to represent the current level of research. Suggested addition: Recent studies in journals like Soil Biology & Biochemistry, Geoderma, and Journal of Arid Environments can give updated insights. Geographical Coverage: Most of the sources concentrate on research from China, the Sahel area, and the Mojave Desert. Incorporating research from other arid and semi-arid locations (e.g., Australia, South America, or the Middle East) would offer further global significance. Diversity in Research Methods: Consider adding references that employ cutting-edge technology, such as remote sensing, machine learning, or molecular approaches, in investigating soil crusts or soil management. Suggested addition: Look for publications employing GIS or drone-based analysis in soil investigations. Key Topics Needing Strengthening: Climate Change Impacts: While Ferrenberg et al. (2015) addresses this, more recent research concentrating on how BSCs interact with climate change are advised. Carbon and Nitrogen Cycling: Adding references discussing BSC contributions to these cycles will expand the natural context. Suggested addition: Look at papers by Belnap, Bowker, or Reed published after 2015 for updated results. Duplicate References: Zhao et al. (2010) is mentioned twice. Consolidating duplicates will increase clarity. Formatting and Consistency: Ensure that all references follow the same citation format (e.g., consistent usage of volume, issue, and page numbers). Include DOIs whenever feasible to promote simple access. Potential Additional References: Here are some recent and related books that could be useful: Bowker, M.A., et al. (2020). "Biological soil crusts: A roadmap for harnessing ecosystem services in a changing world." Ecosystem Services. Chiquoine, L.P., et al. (2021). "BSC recovery following disturbance in arid lands." Restoration Ecology. Rodríguez-Caballero, E., et al. (2021). "Global patterns of biological soil crust cover and composition." Nature Geoscience. Action Points: Review your references for gaps in recency and subject coverage. Update with latest publications in high-impact journals. Remove duplicates and guarantee formatting consistency. If you'd like, I can assist structure your references or discover certain current publications. Let me know.	
Is the language/English quality of the article suitable for scholarly communications?	Suggestions for Improvement: Proofread the material to fix grammatical faults and polish sentence patterns. Reorganize portions to make the piece more reader-friendly, such as presenting findings more clearly in tables or bullet points. Maintain consistent language and describe technical phrases when they first arise. Use rigorous academic wording and minimize repetition or casual terms. Include graphics, tables, or figures that are alluded to in the text for greater understanding.	
Optional/General comments		

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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