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REVIEWER'S REPORT

Manuscript No.: IJAR- 56384

Title: Inundation risks and habitat vulnerability in the commune of Kolleram, Zinder's Region-Niger.

Recommendation:
Accept as it is .....
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 Comment for Publication.

General Comments

The manuscript investigates inundation risk factors and habitat vulnerability in the commune of Kolleram (Zinder Region, Niger), integrating community perception surveys, rainfall analysis, geomorphological assessment, and physicochemical and geotechnical characterization of clay construction materials. The interdisciplinary approach is commendable, as it combines social, climatic, geomorphological, and material science dimensions to explain flood vulnerability.
The topic is highly relevant for Sahelian regions where increasing rainfall variability, rapid settlement expansion, and reliance on earthen construction amplify disaster risk. The manuscript demonstrates strong potential; however, it requires substantial revision in terms of clarity, methodological rigor, statistical consistency, language quality, and data presentation before it can meet publication standards.

Content and Originality

Strengths:

- The study addresses an important and contemporary issue: flood risk in semi-arid Sahelian environments.
- The integration of geomaterials characterization into flood vulnerability analysis is innovative and strengthens the originality.
- The combination of perception surveys and laboratory analysis adds interdisciplinary value.
- The paper identifies both environmental drivers (rainfall, morphology) and structural vulnerability factors (clay properties).

Weaknesses:

- The novelty is moderate because flood risk studies in Niger and the Sahel are well documented; the manuscript should better highlight what is new (e.g., first geotechnical-based vulnerability assessment in Kolleram?).
- Some findings confirm already established knowledge (e.g., absence of drainage, settlement in depressions).
- The link between rainfall threshold analysis and actual recorded flood years could be more explicitly demonstrated.

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Recommendation: Strengthen originality by clearly stating what distinguishes this study from previous flood assessments in Zinder and surrounding regions.

Technical Quality

1. Methodological Strengths:

- Clear description of survey sampling (100 respondents).
- Use of Hazen frequency method for rainfall threshold determination.
- Laboratory-based XRF chemical analysis.
- Atterberg limits and compressive strength testing.

2. Methodological Weaknesses:

- The rainfall threshold (≥ 35 mm) requires stronger justification. Why 5% non-exceedance? Is this standard for Sahelian flood analysis?
- No statistical test is provided to validate rainfall trend significance.
- The sample size for geotechnical tests (2 per quarry for Atterberg) is relatively small.
- The composite sampling approach may reduce spatial variability representation.
- Units are inconsistently formatted (bars vs KN vs mm).
- Some values appear unusually precise (e.g., SiO_2 values to three decimals).

3. Data Interpretation Issues:

- The SiO_2/Al_2O_3 ratio interpretation appears inconsistent between results and discussion sections (ratios seem reversed in one section).
- Carbon content of 19% in Kolleram clay seems unusually high and should be explained.
- Compressive strength values (6.16 bar vs 12.3 bar) need contextual comparison with building standards.

Language and Presentation

The manuscript requires significant language editing.

Common Issues:

- Grammatical errors (missing articles, inconsistent tense).
- Inconsistent capitalization.
- Spacing issues (e.g., "extremerainfall", "Characterisation of Clayused").
- Reference formatting inconsistent.
- Minor typographical errors in tables (comma vs decimal point).
- Some awkward phrasing (e.g., "Resistivityweight", "Contraint").

Examples:

- "Inundations are becoming increasingly frequent and disastrous in Niger." → acceptable but could be refined.
- "The clay geomaterials used in Kolleram are primarily kaolin deposits." → should specify "kaolinite-rich".

Language quality: Moderate to weak – professional proofreading required.

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Structure and Organization
Strengths:
- Logical flow: Introduction → Methods → Results → Discussion → Conclusion.
- Clear subheadings in Results and Discussion.
- Tables and figures referenced systematically.

Weaknesses:
- Some redundancy between Results and Discussion.
- Discussion could better integrate references to support comparisons.
- Figures are referenced but not critically interpreted in depth.
- Conclusion summarizes well but could be more concise.
- Some numbering inconsistencies in references.

The manuscript structure is acceptable but requires tightening and reduction of repetition.

References and Citations
Strengths:
- Extensive referencing (33 references).
- Strong regional relevance.
- Inclusion of climate and geomaterials literature.

Weaknesses:
- Inconsistent formatting style.
- Some references incomplete or poorly formatted.
- Duplicate entry (#27 and #33 appear identical).
- Mixed languages (French/English) without consistent formatting.
- Some DOIs missing.
- Several spacing and typographical errors.

The reference list requires careful editing and standardization (APA, Harvard, or journal format).

Overall Recommendation
The manuscript has strong interdisciplinary relevance and addresses a critical environmental and socio-technical issue in the Sahel. The integration of geotechnical characterization into flood vulnerability assessment is a minor strength.
However, before publication, the manuscript requires:
1. Clarification of methodological justifications.
2. Correction of chemical ratio inconsistencies.
3. Strengthening of rainfall trend statistical analysis.
4. Improved explanation of geotechnical implications.
5. Professional English editing.
6. Reference list correction and formatting standardization.
7. Minor reduction of repetitive content.

Final Decision:
Minor Revision Required
The manuscript is scientifically valuable and publishable after substantial technical and editorial revision. If these concerns are addressed carefully, the paper could make a meaningful contribution to flood risk and habitat vulnerability studies in Sahelian contexts.