

## REVIEWER'S REPORT

Manuscript No.: IJAR-53973

Date: 23.09.2025

**Title: LAND USE DYNAMICS AND SOIL VULNERABILITY TO WATER EROSION IN THE AGNEBY WATERSHED (IVORY COAST)**

### 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 Name: **ANAPANA GOPAL**

Date: 23.09.2025

### Reviewer's Comment for Publication.

*(To be published with the manuscript in the journal)*

*The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.*

### General Comments

The manuscript addresses an important environmental issue — the relationship between land use dynamics and soil vulnerability to water erosion in the Agnéby watershed, Côte d'Ivoire. The topic is timely and relevant given ongoing concerns about deforestation, land degradation, and sustainable land management in West Africa. The paper is well-grounded in remote sensing and GIS techniques, providing valuable spatial and temporal insights. However, improvements are needed in language clarity, structure, methodological details, and consistency in references.

### Content and Originality

#### • Strengths:

- The study fills a regional knowledge gap by providing a diachronic analysis of land use and soil erosion vulnerability.
- It integrates remote sensing, GIS, and soil data in a coherent framework.
- The focus on Agnéby watershed contributes localized insights into a globally relevant issue (land degradation and erosion).

#### • Weaknesses:

- The originality is moderate, as similar methodologies (land use classification + erosion vulnerability mapping) are widely used.
- The novelty lies more in the case study region than in the methods.

## REVIEWER'S REPORT

### Technical Quality

- **Strengths:**
  - Use of multi-temporal Landsat images (1987, 2005, 2020) strengthens the temporal analysis.
  - Clear classification scheme (forest, mosaic, habitat/bare soil, etc.).
  - Quantitative assessment of land use change and soil vulnerability dynamics is useful.
- **Weaknesses:**
  - The methodology section could be expanded with **accuracy assessment of classification results** (e.g., kappa coefficient, overall accuracy).
  - The description of the soil vulnerability model (based on Yao, 2023) is too brief; readers unfamiliar with this approach may find it unclear.

### Language and Presentation

- **Strengths:**
  - Scientific tone is generally maintained.
  - Results are clearly narrated with supporting statistics.
- **Weaknesses:**
  - Numerous grammatical errors and awkward sentence structures (e.g., "algorithm " algorithm" duplication).
  - Overly long sentences reduce readability.
  - Some terms are inconsistent (e.g., "Virgin forest" vs. "Primary forest").
  - Figures and tables need clearer captions (e.g., Table 1's title is vague, should explicitly state "Land use dynamics, 1987–2020").
  - References in-text sometimes lack consistency in style (e.g., "Kouakouet al., 2022" → missing space).

### Structure and Organization

- **Strengths:**
  - Standard structure (Introduction, Methods, Results, Discussion, Conclusion) is followed.
  - Results are logically presented from land use → soil vulnerability → relationship between the two.
- **Weaknesses:**
  - The introduction is too descriptive; it could be shortened and sharpened to highlight research gaps and objectives.
  - Methods lack subsections on **data processing workflow** and **validation procedures**.
  - Results sometimes mix interpretation with discussion (e.g., comments on forest decline appear in Results instead of Discussion).

### References and Citations

- **Strengths:**
  - A comprehensive list of regional and thematic references is included.
  - Mix of theses, articles, and institutional reports shows depth of research.
- **Weaknesses:**
  - In-text citations are inconsistently formatted (sometimes initials included, sometimes not).

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## REVIEWER'S REPORT

- Reference style does not fully align with standard journal requirements (e.g., APA or Harvard).
- Some entries lack complete details (e.g., missing DOI, missing page ranges, inconsistent capitalization).
- Many references are from theses and local journals; inclusion of more **recent international peer-reviewed studies** would strengthen the literature base.

### Overall Recommendation

#### Recommendation: Minor Revision

The study is relevant, data-driven, and regionally valuable. However, to be publishable at an international level, the following must be addressed:

1. Improve **language and grammar** throughout for readability.
2. Provide **classification accuracy assessment** for land use maps.
3. Expand **methodological details** (erosion vulnerability model, data preprocessing).
4. Strengthen the **discussion** by comparing findings with similar studies globally.
5. Standardize **citations and references** according to journal guidelines.
6. Clarify figures and tables with precise titles, legends, and units.

If these revisions are carefully implemented, the manuscript could make a meaningful contribution to understanding land degradation in West Africa.

### *Detailed Reviewer's Report*