Review of: "MCDA - Groundwater prediction analysis for Sustainable Development using GIS Supported AHP in Okeigbo, Southwestern Nigeria"

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Potential competing interests: No potential competing interests to declare.

After carefully reviewing the manuscript titled "MCDA - Groundwater prediction analysis for Sustainable Development using GIS Supported AHP in Okeigbo, Southwestern Nigeria," I appreciate the effort put into this research. While the paper exhibits potential, there are several areas that require significant improvement. In order to enhance the overall quality and readability of the manuscript, I recommend a thorough revision addressing the following concerns:

While the title mentions "groundwater prediction analysis," the actual content of the text does not clearly indicate what is being predicted. It is crucial to provide explicit clarification within the manuscript regarding the specific aspect or variable being predicted in relation to groundwater. This will help readers understand the focus and objective of the study more effectively.

The first paragraph should provide a comprehensive overview of the research, emphasizing the significance and relevance of the chosen topic. Clearly articulate the research gap that this study aims to address and highlight the importance of filling this gap.

The abbreviation "GWPIV" in the keywords section does not hold any recognizable meaning since it is not a commonly known term. Please consider replacing it with a more familiar and relevant keyword.

Enhance the literature review section by incorporating recent references that directly relate to the research topic. While the existing references provide a foundation, including studies published in 2022 and 2023 will strengthen the relevance and currency of the research.

To underscore the significance and novelty of this research, it is recommended to provide a clearer and more explicit articulation of the study's aims and objectives at the end of the introduction section. This will effectively highlight the research's importance and the unique contributions it brings to the field.

To augment the manuscript, rely on and cite more recent literature, Specifically, consider incorporating references such as:

Samani, S. (2021). Assessment of groundwater sustainability and management plan formulations through the integration of hydrogeological, environmental, social, economic and policy indices. *Groundwater for Sustainable Development*, *15*,

100681.

Samani, S. (2021). Analyzing the groundwater resources sustainability management plan in Iran through comparative studies. Groundwater for Sustainable Development, 12, 100521.

Create a comprehensive table that thoroughly compares the advantages and disadvantages of the applied methodology for predicting groundwater sustainability with other similar methodologies. This table should be meticulously constructed based on an extensive literature review, enabling readers to gain a clear understanding of the unique features and merits associated with the chosen methodology.

To captivate readers and emphasize the original contributions of this study, clearly highlight the significant difficulties, challenges, and innovative solutions introduced in the abstract and introduction. This will enable readers to quickly comprehend the novelty and importance of the research.

Integrate a well-structured flowchart within the manuscript to illustrate the research methodology. This visual representation will facilitate readers' understanding of the step-by-step process and aid in replicating the study.

Include a comprehensive list of the software utilized in this study, specifically indicating which software was used for applying Analytical Hierarchy Process (AHP) method. This will provide transparency and enable readers to reproduce the research.

The presented methodology and the resulting findings would benefit from verification and interpretation in the context of the hydrogeology and geology specific to the study area. Incorporating a thorough analysis of the hydrogeological and geological characteristics of the study area will provide a solid foundation for validating and interpreting the methodology's outcomes. This additional step will enhance the robustness and applicability of the research findings

Strengthen the comparative analysis between the current study and previous research concerning groundwater prediction and sustainability. Undertake a more extensive literature review to identify and incorporate additional relevant studies into the discussion. This approach will facilitate a comprehensive and up-to-date understanding of the research landscape, enabling a more insightful evaluation of the study's contributions and placing it within the broader context of existing knowledge.

Provide a clear and concise outline of the limitations associated with the spatial AHP method utilized in the present study. Emphasize specific areas that warrant further investigation and exploration. Engage in a comprehensive discussion about potential directions for future research, highlighting the significance of addressing these limitations to drive advancements in the field. By addressing these limitations, researchers can contribute to the progress and development of spatial AHP methodology in groundwater prediction and sustainability studies.

By addressing these concerns and implementing the suggested improvements, the manuscript will undergo a significant transformation, enhancing its coherence, clarity, and overall quality.