**Statement on Manuscript Revision**

In the revised version of the manuscript, we have carefully considered and incorporated the valuable feedback provided by the reviewers and editors. This statement aims to highlight the changes made in response to their feedback and elucidate how these changes enhance the manuscript:

1. **Title Revision**: We have revised the title to "Assessing the Effectiveness and Sensitivity of CCME-WQI, NSF-WQI, OWQI, and Smith Index Water Quality Indices in Karst Areas" to address Reviewer A's suggestion regarding the clarification of the relationship between effectiveness and sensitivity.
2. **Introduction Clarification**: Additional clarification has been provided in the Introduction section regarding the urgency and justification for using PCA in the methodology. This addresses Reviewer A's concern and ensures the readers have a clear understanding of the rationale behind employing PCA.
3. **Subtitle Clarity**: The subtitle in section 3.1 has been revised to "Parameter Selection and Weighting Using Principal Component Analysis (PCA)" to provide clarity on the specific method utilized, as suggested by Reviewer A.
4. **Table Presentation**: We have adjusted the row spacing in Table 5 and Table 6 to improve readability, addressing Reviewer A's comment on table formatting.
5. **Parameter Weights Clarification**: A footnote has been added to Table 6, detailing the calculation and meaning of parameter weights. This addition aims to enhance clarity and address Reviewer A's query regarding the interpretation of parameter weights.
6. **Discussion Elaboration**: In the Discussion section, we have elaborated on the relationship between the effectiveness and sensitivity of the indices, as suggested by Reviewer A. This provides further insights into this aspect of the study and strengthens the discussion.

Overall, these revisions reflect our commitment to addressing the feedback provided by the reviewers and editors, ensuring the manuscript meets the highest standards of clarity and quality.

**Detailed Response to Reviewer Feedback:**

Here's a detailed response addressing each comment individually:

1. **Multivariate Analysis Terminology**: The term "multivariative" has been corrected to "multivariate" throughout the manuscript.
2. **Clarification of Title**: The title has been revised to "Assessing the Effectiveness and Sensitivity of CCME-WQI, NSF-WQI, OWQI, and Smith Index Water Quality Indices in Karst Areas" to better align with the objective of analyzing both effectiveness and sensitivity. This change aims to clarify the relationship between sensitivity and effectiveness.
3. **Explanation of PCA Urgency**: In the Introduction section, additional clarification has been provided regarding the urgency and justification for using PCA in the methodology. We now emphasize that PCA is employed to reduce the number of parameters to those most relevant to water quality assessment, thus streamlining the analysis process.
4. **Subtitle Clarity in Methodology**: The subtitle in section 3.1 has been revised to "Parameter Selection and Weighting Using Principal Component Analysis (PCA)" to provide clarity on the specific method utilized.
5. **Table Spacing Adjustment**: The row spacing in Table 5 and Table 6 has been adjusted to improve readability and presentation.
6. **Clarification on Parameter Weights**: A footnote has been added to Table 6, detailing the calculation and meaning of parameter weights. This addition aims to enhance clarity and provide readers with a better understanding of the parameter weights presented.
7. **Elaboration on Relationship between Effectiveness and Sensitivity**: In the Discussion section, we have elaborated on the relationship between the effectiveness and sensitivity of the indices, addressing Reviewer A's concern and providing further insights into this aspect of the study.

These revisions have been implemented to address the specific comments provided by Reviewer A and to enhance the overall quality and clarity of the manuscript.

Thank you for your understanding and consideration.

Sincerely,

Almira Rahma Hinanto