Review of: "Assessment of Quality of drinking waterbased on the water quality index method in Hawassa Zuria Woreda, Sidama Regional State, Ethiopia"

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Potential competing interests: No potential competing interests to declare.

The paper is a good contribution in context with assessment of quality of drinking water based on the water quality index method in Regional State of Ethopia. However, following may be considered for adding value to the paper and to improve the academic research accordingly.

1. First of all, there are major structural issues which are creating ambiguities for the reader; i.e, as in the study, 2 Aspects (bacteriological and physicochemical) of water quality are discussed, while according to the parameters of WHO, 4 distinct aspects (Microbial, Chemical, Radiological , Acceptability) need to be considered with standard permissible limit.
2. In the study, Water quality index is a tool to assess the quality of drinking water but the limitation of this index is not been highlighted here. It's been noted that Different WQIs are used on the basis of the same variables and lead to different classification. So it is not standardized one.
3. Different WQIs are used on the basis of different types or numbers of variables so how do you define all of these limitations on the basis sources, variables and scales.
4. Your data instrument need further assurance of validity and reliability because, there are no specific logical parameters of index. Each study has differential parameters. So the question arises that how various scales of the same index can be used to evaluate surface water quality PH, BOD, COD DO concentration of permanganate, ammonia, and nitrate, chloride iron manganese Alkyl benzene salphonates, carbon chloroform extract and suspended solids?
5. In case of heavy metal assessment, various representative water samples (Bore Hole, storage-household containers, taps) were collected and analyzed. But while analyzing, it's not been indicated that critical and acceptable limits according to the specific water sample is different.
6. For the analysis of heavy metals, multiple sources have different detections limit and comparative analysis has been performed by using Heavy Metal Evaluation (HEI) and Heavy Metal Pollution Index (HPI) but the analysis is done on the sample collected irrespective of segregation in accordance to the sample.
7. In addition to this, relative seasonal variation in respect to time of assessment and applicability of assessment criteria in different samples need detailed elaboration.
8. Moreover, the sample size is not representative to estimate the water quality of the regional state of Ethopia.

9. Another required explanation is regarding the difference between standards/guideline of Ethopia and WHO.
10. In the whole paper, hierarchy is not clear. In introduction the specific deductive approach of writing has immense importance. On the page no 8, in the segment of “Material and Methods”, author has conducted the “Microbial Analyses” then Data Analysis. However, it is unclear that Why the portion of result get started in page 8 and then physicochemical parameters? All the conducted analysis should be in a same portion and every segment of the paper (introduction, Material and Method, Analysis, result, discussion, conclusion and recommendation should be confined and symmetrical with proper segmentations).
11. Manuscript is reflecting that author applied some statistical analysis on the collected data but it’s been observed that uniformity of data explanation in accordance of each parameter is not understandable in the documents.
12. In the portion of discussion, results are interpreted. Results should be a separate portion or may be results and discussion can be compiled with clear.
13. As in every academic research, recommendation and abstract should be comprehensive. So the portion of recommendation needs more attention and each recommendation must be derived within the scope of research with proper heading and segmentation.

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