

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.

General comments:

The graphical abstract could be improved to include the entire tap system with boreholes, retainers, storage tanks, and taps.

Please update the references throughout the paper to include sources up to the year 2023, particularly in the introduction section.

The access to figures and tables is missing. The results should be clearly presented in supplementary material as well as in the main body of the text. Additionally, consider using the Mendeley data system for data repository. Also, include a QGIS map of the study area.

The English language could be improved.

The paper is interesting and provides knowledge on how to assess the quality of drinking water based on the water quality index. The paper is well-presented but requires some reorganization. The methods are clearly described, and both chemical and microbiological analyses were performed. Overall, with minor revisions and reorganization (especially in the results and discussion chapters), the paper could be acceptable.

Specific comments:

The abstract is too long. It could be condensed to around 500 words to better convey the project's content.

In the description of the study, please include a geological description of the study area in a few sentences.

In the Methods section, provide a reference or explain the special reason for collecting water samples between 7:00 and 8:00 in the morning.

Include all tables (Table 1 to Table 12), including in-situ analyses and laboratory results, in the supplementary material or data repository. Also, include correlation tables in the text and tables of results for all calculated indexes.

When mentioning correlations, provide better explanations for why certain measured parameters, such as Pb/Zn,

Pb/turbidity, Cu/pH, and EC/turbidity, correlate while others do not. Find explanations for these correlations.

The Results and Discussion sections should be better connected. Consider presenting the results and discussion together to avoid a report-like structure where concentrations of all elements are listed. Create subchapters in the Discussion section, such as physicochemical parameters (conductivity, pH, total hardness, turbidity), cations in water (mention specifically that only Mg^{2+} was measured), anions in water (NO_3^- , PO_4^{3-} , F^-), minor elements and trace elements (Mn, Pb, Zn, Cu, Ni, Fe). Additionally, consider including boxplots to better visualize the data. It is recommended to include PCA (principal component analysis) of all parameters to classify groups of samples based on element concentration.

In the Discussion section, clarify that the formation of ferric precipitates that make drinking water objectionable occurs only in the Umbolo reservoir. Can you explain why?

In the Conclusion section, provide a better explanation for why the authorized body should pay special attention to removing lead and nickel. Additionally, explain in the conclusion that even though 73.9% of the analyzed water samples had an excellent WQI, regular monitoring is still necessary, particularly for microbiology. For all parameters or only for microbiology?

Check for typos throughout the text, such as "The water samples used in the current investigation had fluoride levels ranging from 1.25 mg/l (Dore Bafano Reservoir) to 4.5 mg/l (Gamato borehole)." and "Thirteen samples of potable water contained iron, but only two of those samples' concentrations were below the detection threshold (Figure 2) (Umbulo reservoir)...".

Please review the paper with these comments in mind to improve its clarity, organization, and language.
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