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Discussions

[DWESD]

Interactive
comment

Interactive comment on "Industrial and Residential Ground Water Physico-Chemical Properties Assessment in Lagos Metropolis" *by* Lekan Taofeek Popoola et al.

Anonymous Referee #1

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General comments The manuscript gives information about the physico-chemical properties in Lagos Metropolis. However, the methodology used, the sampling period, the presentation of the results and the no consideration of the aquifer characteristics, local/regional groundwater flow, etc., do not allow to have a proper understanding of the problem.

Methodological synthesis - A location figure is missing, indicating the specific location of the study area (i.e., boreholes, Deli foods, OK foods, Lagos lagoon, fertilizer company (for Nitrate concentrations), etc.) - The description of the aquifer characteristics is a must. Does it correspond to a phreatic, semi-confined or confined aquifer? Please

provide the lithology of the study area, including the depth of the boreholes used during the research. Do the boreholes correspond to the same aquifer layer? - Has any vulnerability assessment been conducted in the study area? It may provide more insights for the analysis of the present results. - How many samples were extracted? - The sampling protocol was too limited. Seasonal behavior should have addressed in order to establish a groundwater assessment. This issue really constraints the scope of this study.

Results and Discussion - A wrong type of plots has been selected by the authors. Box plots, or a similar method, must be used for the results assessment. The number of samples is missing. - The spatial distribution of the sampling points, including the location of facilities of interest, avoids conducting a proper analysis of the results. - Were the samples extracted during rainy season? No information has been provided in order to support the statement related to Nitrate (the authors say: The alkalinity of water sample (IW2) may be attributed to the presence of bicarbonates, part of essential raw materials for production, lost into the soil and percolates into the underground soil via rain water).

Conclusions Local groundwater flow information should have been considered in this study to make it valid. No information regarding to the lithology of the aquifer and potential geogenic contamination of the groundwater has been provided, which limits the assessment and conclusions of this study. Although the Pearson's correlation for some parameters seems to be conclusive, the data analysis and the methodology is limited.

Please also note the supplement to this comment:
https://www.drink-water-eng-sci-discuss.net/dwes-2019-2/dwes-2019-2-RC1-supplement.pdf

Interactive comment on Drink. Water Eng. Sci. Discuss., https://doi.org/10.5194/dwes-2019-2,

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Discussion paper

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