

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.

The article titled "*MCDA - Groundwater prediction analysis for Sustainable Development using GIS Supported AHP in Okeigbo, Southwestern Nigeria*" is a good attempt from the authors. However, I attempted to highlight few queries:

1. The sentence structure of the article is average. For example: "The high potential zone is prominent in the mid-central and north central parts" and "The water table aquifer and the fracture basement are the major water bearing units in the area" are the confusing statements.
2. The article is missing with few basic things, and it needs to be addressed like they used an abbreviation GWPIV in abstract. Its full form is missing.
3. A good review of risk associated with polluted water has been added in the introduction part with authors goals for study area but abstract has not a single line on susceptibility to pollution.
4. The study area description is lacking with updated citations. The used maps must be clearly representing the area with figure number like (a), (b) etc. Spelling mistakes found like "Southwestern Nigeria." No weather chart found as rain/temperature are very important parameter for groundwater studies. The study area map and landcover map are missing resemblance.
5. The statement "The structural characteristics run in the NNW-SSE and NNE-SSW directions" needs further clarifications. The structural map and cross sections could be added to highlight the folding and faulting mechanism.
6. Field photos used in Figure no. 4 need proper citation and marking of the geological feature found in the field. It is better to highlight their coordinates on study area map also. Better to use field scale.
7. Figure 5. Better to use detailed soil map of the study area.
8. "The terrain is rocky and rugged; therefore it makes drilling difficult at a very low cost." This statement in the beginning do not fit your approach. Most of the area is populated it means the data was collected through already drilled wells. No field photo attached in this regard.
9. DEM resolution size is missing.
10. Figure 7. The slope map shows 90 in most of the area. are you sure about it?
11. Figure 8. it must be shown on the study area boundary.
12. Figure 9. also missing study area boundary.
13. "Typical section shown in Figure 7 are characterized by topsoil (55 – 2363 ohm-m), subsoil (374 – 1327 ohm-m),

weathered layer (66 – 350 ohm-m), fractured basement (258 – 854 ohm-m) and basement rock (1876– 2303 ohm-m).”
are you sure about the figure number?

14. “This implies that the area is generally made of high resistive topsoil, underlain by high conductive weathered layer, and basement rock.” This statement is contradictory to the other statement “From Table 1, topsoil has resistivity ranging from 36 – 2363 ohm-m (avg. 255 ohm-m) and thickness varying from 0.7 – 4.9 m (**avg. 1.55 m**) and composed of clay, sandy clay, clayey sand, sand, and laterite. The subsoil is characterized with resistivity ranging from 96 – 3561 ohm-m (**avg. 1149 ohm-m**)”. Please recheck it.
15. “The Fracture contrast and reflection coefficient have strong relationship with groundwater yield, as high FC implies high groundwater potential; and low RC indicates high groundwater yield.” Elaborate this statement.
16. “the groundwater system in the study area is weak, although the central appears less weak, as shown in spatial distribution map of LUC in Figure 12d.” also explain why?
17. “The drainage network and catchment area the maps revealed that all the channels serve as contributors to all the zones in the area....,” not clear in the article.
18. The second objective of the study i.e., susceptibility to pollution is missing in the article. No field data or remote sensing data added in this regard.
19. There must be some data on community role in destabilizing groundwater aquifers as it is stated that it is mostly built area.
20. VES data is lacking in SSW areas. any particular

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