

Review of: "MCDA - Groundwater prediction analysis for Sustainable Development using GIS Supported AHP in Okeigbo, Southwestern Nigeria"

Kai Zosseder¹

¹ Technische Universität München

Potential competing interests: No potential competing interests to declare.

Abstract

- Explain more in detail: What is meant by hydrogeological significance?
- What is the aim of the study?
- GWPIV: not explained in the abstract

Introduction

General remark: Please shorten the Introduction and be focused on the most relevant issues regarding your study. You describe methodologies and measurement techniques, which are not occurring in your study. Also a restructuring is recommended, because you jumping from general hydrogeological topics to regional aspects back to general ones. Additionally, please be more precise in your descriptions, for example ...'landscape geomorphology; and geographic spread of hydro geologic units; and hydrography are all factors affecting groundwater recharge'....hydrography is not a factor which affects groundwater recharge: it is the science, which investigate part of these effects.

- 'groundwater' instead of 'ground water'
- it can be found in voids, cracks, and permeable geological formations: Are voids and cracks not-permeable? Or do they contribute also to the 'permeable geological formations'. The effective porosity, however it is build, is the key factor, as you know. Please reformulate it.
- 'Groundwater usage is ideal due to its accessibility, dependability, and widespread distribution'. I do not understand the sentence. The use of groundwater is ideal because of e.g. dependability? Please reformulate.
- 'The global demand for pure water increases every twenty years.' That's just not true: it increases every time not every twenty years. That would mean it is stable over twenty years and then it increases? Please reformulate.
- 'Aquifers are porous media with varying physical criteria and hydraulic conditions that greatly influence the quality of water they contain and are capable of supplying large amounts of water': Please restructure the sentence.
- 'Okeigbo is a community in Ondo State....' Please start a new paragraph here
- landscape geomorphology; and geographic spread of hydro
- geologic units; and hydrography are all factors affecting groundwater recharge
- ...'The study's goal was to evaluate the potential of groundwater resources and their susceptibility to pollution.'...in my

opinion there is no or just a weak link from all what is described in the introduction before to the goal of this study. You have to interlink the descriptions and motivation a lot more with your definition of the goal of your study.

Material and Methods

Description of the study area: A cross section (maybe schematic) would help to understand the geological situation more in detail. Also here, a more structured description is recommended.

Data acquisition and Analysis: Also here it is recommended to give this section more structure. What is available for what, described in a classic structure. General information like how a pumping test works are dispensable. For example you jump from well test performing to analysis and then to how the wells are drilled. Your description changes from very detailed information to very rough one.

The description of the formulas are also not precise. Some abbreviations are explained, some not. For some you use capital letters in the formula but small letters in the explanation. In some you use the scientific abbreviations, in others you use a text description. This must be a lot improved.

The description of the assessment methods (not only the performed data acquisition) like it is mentioned in the abstract is missing. This must be described here.

Results and discussion

In the first paragraph you mix description of results with methodology description. Descriptions of e.g. 'what a basin are is' are dispensable. The link between Material and Methods and the presented results e.g. in the first paragraph, is totally missing. Descriptions here are also not clear as well as the provided legend in the figures, e.g. what does the 'drainage basin types' mean and their classification (e.g. 23.2, etc...) scheme? Again, the link to the overall assessment is not clear.

Concerning the hydraulic conductivity distribution (Fig. 13a): The regionalization of these values are not explained and raise some questions.

The hydrogeological parameter modelling and groundwater potential mapping must be described in the methods not in the results. And as it is the key method for this study it must be explained more in detail.

The results are just displayed but a critical scientific discussion of the results is missing. For instant the statistical significance of the correlations are missing and are for some results also doubtful. Data accuracy and distribution is not critical discussed (and and and).

This must be extremely revised.

Conclusion

I cannot follow the conclusion because the quality of the survey and analysis is not displayed and discussed.

