Review of: "Groundwater Potential Zone Assessment Using Remote Sensing, Geographical Information System (GIS), and Analytical Hierarchy Process (AHP) Techniques in Fogera Woreda, South Gondar Zone, Ethiopia"

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Potential competing interests: No potential competing interests to declare.

Review of “Groundwater potential zone assessment using remote sensing, geographical information system (GIS), and analytical process (AHP) techniques in Fogera Woreda, South Gondar Zone, Ethiopia” by Mengstie and Getahun

The paper is research concerning the use of GIS and AHP to define groundwater potential zones in a part of Ethiopia. While the subject of the paper is of interest to the research community, the paper lacks specific details and should not be published in its current form. Also, the English used in the paper must be improved to allow readers a proper understanding of the research conducted. The Introduction is insufficient to justify the importance of the investigation and does not provide a significant background literature assessment to justify the research or the approach being used.

The Materials and Methods are insufficient to provide readers justification concerning the use of the various parameters contained in the analysis. Table 1 only shows sources of the data but does not discuss the details contained in those sources, the quality of the data, and how scale-related issues are resolved. As a suggestion to the authors, other papers of this type typically contain 5 to 10 pages of details in the Methods section with information on how the various parameters were chosen and how expert opinions are supported. Numerous references are missing that should be included in this section.

The results and discussion sections are mixed in the paper, which is not a good idea in this case. Mixing actual data with interpretations makes the paper structure difficult to read and does not address fundamental error issues and how the created map can be checked for validity. Many of the classification increments of the data from the base maps are too small to have statistical significance, which renders the final map questionable. A fundamental problem occurs when using the density of lineaments. While wells yield may initially be high, unless the fractured rock aquifer is hydraulically connected to a fluvial or alluvial system that contains significant storage of water, the wells tend to fail in a short timeframe due to the low storativity of the fractured rocks.

The authors need to start from the beginning and define a more integrated approach to using the methods selected to designate groundwater potential zones. Perhaps the authors should seek academic partners from outside of Ethiopia to work with them on their research to improve the approach and the presentation of sufficient data and technical methods rigor to achieve publication.