

### Review Form 3

Journal Name:	<a href="#">Asian Journal of Applied Chemistry Research</a>
Manuscript Number:	Ms_AJACR_126243
Title of the Manuscript:	Assessment of Water Quality in Pangani, Kayole and Dandora Boreholes in Nairobi County, Kenya
Type of the Article	Original Research Article

#### General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<b>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</b>	This manuscript provides valuable insight into water quality in urban boreholes in Nairobi County, Kenya, particularly with regard to physicochemical and bacteriological parameters. Such studies are essential for identifying pollution sources and assessing health risks, which is highly relevant for resource-limited regions with growing populations reliant on groundwater. The focus on WHO standards aligns with global guidelines, making the findings applicable for similar urban settings in developing countries	
<b>Is the title of the article suitable? (If not please suggest an alternative title)</b>	The current title, "Assessment of Water Quality in Pangani, Kayole and Dandora Boreholes in Nairobi County, Kenya," is suitable.	
<b>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</b>	The abstract is largely comprehensive but could benefit from a clearer mention of the primary outcomes related to WHO guidelines for nitrate, E. coli, and heavy metal concentrations, as these are the focal points of health risk. Adding a brief statement on the implications of these findings for public health and potential policy impact would strengthen the abstract's relevance.	
<b>Are subsections and structure of the manuscript appropriate?</b>	<p>The subsections and overall structure are clear and logically arranged, facilitating an understanding of the study's methodology, results, and discussion.</p> <p><b>Introduction</b> The introduction is informative and effectively contextualizes the significance of water quality studies in Nairobi County. It reviews the relevance of water quality assessments, particularly in urban areas facing water scarcity and increased reliance on boreholes. However, to improve the flow and clarity, the background on water quality issues could be condensed, and the introduction could focus more on specific local concerns related to Nairobi, such as industrial pollution and population pressures. Additionally, adding more recent studies (2020 onwards) would enhance the section's currency.</p> <p><b>Materials and Methods</b> The <b>Materials and Methods</b> section is well-detailed and provides a clear account of procedures for collecting and analyzing samples. Key elements include:</p>	

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	<p><b>Study Area and Sampling Points:</b> This subsection effectively outlines the geographic scope and coordinates of the sampling points. Adding a map to illustrate the exact locations of Dandora, Kayole, and Pangani boreholes would enhance visual clarity and contextualize the sampling sites.</p> <p><b>Chemicals and Apparatus:</b> The detailed list of chemicals and equipment used strengthens reproducibility. It would be beneficial to clarify any quality control measures taken, such as blank samples or duplicate analyses, which are essential for ensuring data accuracy.</p> <p><b>Collection and Storage of Samples:</b> The description here is adequate; however, adding the specific timing of storage and any preservative used to maintain sample integrity would reinforce the reliability of the analysis.</p> <p><b>Determination of Physical-Chemical Parameters:</b> Each parameter (TDS, TSS, pH, EC, fluoride, chloride, ammonia, and nitrate) is described with corresponding methods. This section is thorough, yet it could benefit from combining similar steps for clarity. Adding a table summarizing the methodologies used for each parameter would improve readability.</p> <p><b>Heavy Metals and Biological Analysis:</b> The methodologies for heavy metals, Escherichia coli, and total coliforms are sufficiently detailed. Specifying detection limits for the atomic absorption spectrophotometry would further reinforce the reliability of the findings. The biological analysis section is complete, though adding details about quality control steps, such as sample duplicates or use of controls, would strengthen this part.</p> <p><b>Results and Discussion</b></p> <p><b>Physical-Chemical Parameters:</b> Results are well-organized in tables, comparing borehole water quality with WHO, NEMA, and KEBS standards. The section clearly identifies boreholes that deviate from guidelines, such as high TSS and fluoride in certain sites. The discussion is relevant but could be expanded by briefly linking specific parameters to potential sources of contamination, such as industrial or agricultural activities. Additionally, integrating a brief comparison with similar studies in other urban areas could provide a broader context.</p> <p><b>Anion and Ammonia Analysis:</b> The section on anion and ammonia concentrations is informative, with results discussed against relevant guidelines. A deeper exploration into the potential sources and health effects of these ions in urban areas like Nairobi would enhance the discussion.</p> <p><b>Heavy Metals:</b> This subsection adequately addresses the concentrations of zinc, copper, lead, and cadmium, noting deviations from guideline values and potential sources of contamination. Including recent literature on health effects associated with these metals, especially lead and cadmium, would enhance the reader understanding of the risks posed.</p> <p><b>Biological Parameters:</b> The findings related to E. coli and total coliforms are straightforward and emphasize sites with contamination issues. Briefly discussing possible sources of biological contamination, such as sanitation issues or leaking sewage, would provide additional insights.</p> <p><b>Conclusion:</b> The conclusion succinctly recaps key findings and highlights the exceedance of guidelines for certain parameters. However, it could be strengthened by summarizing the broader implications of the findings for local health or suggesting specific interventions, such as improved filtration systems or community education initiatives, to mitigate contamination risks.</p> <p><b>References</b></p> <p>The references are relevant and include a mix of local and international sources. However, more recent sources (post-2020) would add value, especially on emerging contaminants in groundwater and urban water quality management.</p>	
<p><b>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</b></p>	<p>The manuscript is scientifically robust and technically sound, with well-defined methodologies for analyzing water quality parameters. The use of internationally accepted standards, such as WHO guidelines, and reliable analytical techniques (e.g., atomic absorption spectrophotometry) enhances the reliability and relevance of the findings. The study offers practical insights into potential health risks associated with borehole water and serves as a reference for environmental quality assessments in similar settings.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>The references are relevant but could be updated to include more recent studies (post-2020) to reflect current trends in water quality research and emerging contaminants. Adding recent literature on borehole water quality and public health impacts in urban African regions would enhance the study's contemporary relevance.</p>	

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Minor REVISION comments <b>Is the language/English quality of the article suitable for scholarly communications?</b>	The language is generally clear, though minor grammatical improvements could be made to ensure readability. For example, consistent formatting and phrasing for terms like "borehole water" or "sampling sites" could enhance clarity.	
<u>Optional/General</u> comments	This study could be strengthened by suggesting specific policy recommendations or community-based interventions based on the findings.	

### **PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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