Review Form 3

Journal Name:	**Asian Journal of Environment & Ecology**
Manuscript Number:	**Ms_AJEE_127325**
Title of the Manuscript:	**Status of Trace metals Concentrations in Lake Baringo Catchment: A review**
Type of the Article	

Review Form 3

PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
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.	The manuscript is a good scientific effort in concern to the lake water studies. Though the manuscript is potentially good as a review, but needs revision to have strong impact on the readers.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	Following title can be considered Status of Trace metals' Concentration in Lake Baringo's Catchment: A Review or A Review over the Trace metals' Concentration in the Catchment of Lake Baringo, Kenya.	
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.	It needs revision, detail comments are given below **Abstract -** 1. It is advised to redraft the statement "Located in a semi-arid area, in the floor of the rift valley and at a relatively low altitude, it is greatly influenced by materials derived from the steep gradient landscape catchment, anthropogenic activities and formations" as Being located in a semi-arid area, along the floor of the rift valley with relatively low altitude, it is greatly…….. anthropogenic activities and formations. 2. It is advised to re-write the abstract in a single paragraph. 3. It is advised to redraft the statement "Cadmium, lead, arsenic inorganic species, and mercury are heavy metals which are considered the most toxic to humans, animals and the environment, amongst the non-essential trace elements." as Cadmium, lead, arsenic's inorganic species, and mercury are the heavy metals which are considered to be the most toxic amongst the non-essential trace elements to humans, animals and the environment. 4. It is advised to shorten the statement "Today, in the developing countries like Kenya, concerns regarding metals are increasing even in remote areas, due to increased generation of electronic wastes, uncontrolled solid waste disposal and untreated wastewater, abandoned and active mining operations, atmospheric deposits, mineral weathering processes, and leaching of terrestrially applied agrochemicals." into two or more statements for better write-up. 5. It is advised to write the statement "Therefore, potential sources, occurrences and accumulation in the aquatic environmental samples are of concerns worldwide due to their known toxicities." by omitting the word '**Therefore'.** 6. It is advised to write the statement "Trace metals such as Cd, As, Cu, Fe, Hg, Cr, Mn, Ni, Zn, Sn, and Pb are very important contaminants know to cause severe toxicity to aquatic organisms and fish species." by omitting the word '**important'** and replacing the word know by known**.** 7. It is advised to re-write the statement "Through drinking water, consumption of aquatic species, humans can accumulate elevated levels, and hence the stringent regulation of toxic elements in water food and other products." 8. It is advised to capitalize the first letter of all key words. 9. There is a scope of improvement in Abstract.	
Are subsections and structure of the manuscript appropriate?	Needs revision. Suggestions are given in general comments	
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.	Though the manuscript is highlighting important data from the lake water system and addressing an important issue of the trace metals' existence and its implication, but needs revision to present the idea in much better way.	

Review Form 3

Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	No, Suggestions are given in general comments.	

Review Form 3

Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Yes, but needs minor revision. Suggestions are also given in general comments.	
Optional/General comments	**Introduction -** 1. It is advised to provide a relevant citation for the statement "It is a relatively shallow and topographically closed basin which deepens towards the north. Lake Baringo in Kenya (East Africa) is a Ramsar site, famous for its high bird diversity, hippopotamus and crocodile populations." 2. It is advised to shorten the statement "Today, there is increased awareness on anthropogenic impacts and pollution threats on the surface water quality of natural lakes, rivers and underground waters sources, with many national standards and guidelines on solid waste management, air pollution, wastewater and effluent discharges, as tools for sound water resources management." into two or more statements for better write-up and rectify the grammatical error highlighted in red. 3. It is advised to write the statement "With respect to plants, these are referred to as micronutrients and include B, Cu, Fe, Zn, Mn, and Mo." by replacing the highlighted with referred to be as. It also needs appropriate citation. 4. It is advised to write the statement "Micronutrients are also referred to as trace elements since they are required in only small quantities, unlike major nutrients such as N, P, and K." by replacing the highlighted with referred to be as. It also needs appropriate citation. 5. It is advised to provide a relevant citation for the statement "In excess, trace elements can be toxic to plants, microbes, animals, and humans." Suggestion is given below Ganvir PS, and Papadkar JN, HYDRO-GEOCHEMISTRY AND HUMAN HEALTH: A BRIEF. International Journal of Food and Nutritional Sciences, 2022:11(11); 223-227. 6. It is advised to provide a relevant citation for the statement "Trace elements in natural media are present at concentrations of less than 0.1%. In biochemical and bio-medical research, trace element concentrations in plant and tissues are normally less than 0.01%," 7. It is advised to put the citation of **Table 1** at the end in the statement "Thirteen trace metals and metalloids are considered priority pollutants (Table 1) and they can be derived from both natural (geogenic) and anthropogenic sources (Adriano 2005, 2001; Sparks 2005)." 8. It is advised to provide a relevant citation for the statement "Natural sources include parent rocks and metallic minerals (metalliferous ores)." Suggestion is given below Singh, V. B., Madhav, S., Pant, N. C., & Shekhar, R. (Eds.). (2023). *Weathering and Erosion Processes in the Natural Environment*. John Wiley & Sons. 9. It is advised to provide a relevant citation for the statement "Atmospheric deposition is a major mechanism for metal input to plants and soils." 10. It is advised to provide a relevant citation for the statement "These contaminants can then impact freshwater and groundwater systems" Suggestion is given below Ganvir PS, and Guhey R, An Implication of Enhanced Rock Weathering on the Groundwater Quality: A Case Study from Wardha Valley Coalfields, Central India. *Weathering and Erosion Processes in the Natural Environment*, 2023:215-242. https://doi.org/10.1002/9781394157365.ch9 11. The work of **Adriano** has been citied at multiple statements; avoid circling around any single author or work. 12. It is advised to provide a relevant citation for the statement "In the environment, natural concentrations can be magnified through accumulation in soils, sediments and biota, leading to levels above allowed thresholds for different environmental compartments." and "There is increasing awareness and concern over the environmental and biological effects of elevated concentrations of toxic and bioavailable heavy metals and residues of persistent organic substances in most natural aquatic ecosystems." Suggestions are given below Papadkar JN, Ganvir PS, Nimbarte GR, Patre PP, Barsagade AU and Chandekar RD. A REVIEW OVER THE CAUSAL RELATIONSHIP BETWEEN HYDRO-GEOCHEMISTRY AND BIOACCUMULATION IN SPECIAL REFERENCE TO COALFIELDS. 2023:12(4);15288-15297. Papadkar, J. N., Ganvir, P. S., Nimbarte, G. R., Patre, P. P., Pusala, S. V., Sakhare, S. K., & Ghagargunde, P. G. (2024). Implications of Coalfield Dynamics on Associated Ecosystems: A Tangential Review. *UTTAR PRADESH JOURNAL OF ZOOLOGY*, *45*(20), 34-43. https://doi.org/10.56557/upjoz/2024/v45i204563 13. It is advised to provide a relevant citation for the statement "In volcanic formations and areas known to contain geothermal energy sources, like Lakes Baringo and Bogoria, metal sulphides can released from geothermal fluids, although such assessment data is only for geothermal development and consequences in adjoining aquatic ecosystems need to be prioritized."	

	14. It is advised to shorten the statement “Elsewhere and in other natural waters (Poste et al. 2015; Orata et al. 2008; Oluoch-Otiego, et al. 2016; Omwoma et al. 2015; Nnamuyomba, 2014; Orata et al. 2008; Igwegbe et al. 2014), evidence of low levels of priority metal (cadmium, mercury, Methyl Hg, lead, Arsenic) and organic residues (Dichlorodiphenyltrichloroethane and metabolites; polychlorinated biphenyls, dioxins; organochlorines; organophosphates) accumulated along aquatic food chains exists but only few data is available for L. Baringo (Campbell et al. 2003) and neighboring natural aquatic ecosystems (Mungachia et al. 1992; Muohi 2007; Jirsa et al. 2013; Bonzongo et al. 1996; Bettinetti et al. 2011; Lincer et al. 1981; Ogendi et al. 2014) and fish culture systems (Omwenga et al. 2016).” into two or more statements for better write-up. 15. It is advised to put the citation at the end of the statements “Aquatic macrophytes showed higher concentration factors of accumulated Cd, Zn, Pb, and Cu (Fayed et al., 1985) than sediments from the same site.” And “Currently, urban domestic and industrial wastewater effluents are sources of concern of trace organic and inorganic residues (Kimosop et al. 2016; Chirikona et al. 2015) some of which are toxic, persistent, carcinogens, and endocrine disruptors, which are included in water quality assessments.” 16. It is advised to remove the symbol highlighted in the statementa “Currently economically exploited fish species from L. Baringo includes:-Clarias gariepinus, Oreochromis niloticus baringoensis, Protopterus aethiopicus, Labeo cylindricus, and Barbus intermedius lineomaculatus (Kembenya et al. 2014; Omondi et al. 2013).” and “Some of the priority pollutants that have been found in variable levels in the main compartments of Lake Baringo ecosystem includes:-Cd, Cr, Al, Fe, Mn, Pb, F, Se, Cu, and organic pesticide residues” 17. There is a scope of improvement in the Introduction section. It is advised to generate a firm continuity and increase number of relevant and recent works to support the stated information. **Location and geological setting of Lake Baringo basin** 1. It is advised to put the citation at the end of the statement “Recent hydrogeological evidence confirms the original assumption (Beadle 1932) that some lake water is lost by underground seepage through the fractured lake floor (Onyando et al. 2005).” 2. It is advised to revise the pattern of in text citation in the statement “Dunkley et al. (1993) estimated that this outflow could exceed 108 m3/year. The rift geological formations have been associated with high fluoride contents in underground water sources (Olaka et al. 2016), which compromises the desired natural water quality for human consumption.” like Dunkley and others (1993). 3. It is advised to check the highlighted word in the statement “The lake has a surface area of between 130 Km2 and 160 Km2, with a variable water depth and physic-chemical characteristics, reflecting the high dry and wet seasonal influences in the semi arid climatic zone.” 4. See comment no. 1 for the statement “Paleolimnological studies (Kiage and Liu 2009; Renaut et al. 2000) have also been used to generate paleogeographic information and records of the past climatic conditions and variability in Lake Baringo.” 5. It is advised to put the citation at the end of the statement “In their upper reaches, these rivers drain thick series of basalts, phonolites and trachytes of Mio-pliocene age, while downstream they flow across Pleistocene trachyphonolites, pyroclastic deposits, and siliciclastic fluvial sediments.” 6. The section of Location and geological setting of Lake Baringo basin circles around many facets of the study area other than location and geology. It is advised to reclassify the section according the data. **Materials and methods** 1. It is advised to re-write the statement “The review methodology used an approach for systematic literature review to search for documented information in scientific journals using the common search engines (Science direct, google scholar and scopus etc) and those used for analysis were evaluated according to table 4.” to cite the Table 4 as per citation pattern. 2. It is advised to reconsider the arrangement of the various Tables in the manuscript. **Results and Discussions** 1. It is advised to rearrange the entire section for impactful manifestation. As the arrangements of tables and the write up needs continuity and synchronization. 2. The data given in “Guidelines values for health related inorganic chemical species” need to be considered as a separate table. 3. It is advised to redraft the statement “Toxic inorganic elements concentrations (Hg, As, Be, Ba, Pb, Ni, Sn, Cu, Cr, Cd, Ag, Se) in water are more prioritized due to the potential long term human health hazards and when in excessive levels tend to interfere with many beneficial uses of the water, while excess concentrations of some trace metals (Al, Fe, Mn, Zn) are regulated in drinking water due to aesthetic properties (FAO).” in concern to the citation. 4. It is advised to put the citation at the end of the statement “According to a study (Ganta et al., 2015), in a high fluoridated belt area, the amount of F present in the fishes is directly related to the severity of flourosis amongst fish consuming population suggesting fishes as contributing factor to flourosis depending upon dietary	

	consumption." 5. A detailed revision is needed in the sub-sections: **Trace elements in lake water, Flouride ion concentrations in the Lake Baringo basin, Trace metals in suspended and bottom sediments and Trace elements in fish species.** 6. The entire **Results and Discussions section along with sub-sections needs special attention.**	

PART 2:

	Reviewer's comment	**Author's comment** *(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)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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