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Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_24394
Title of the Manuscript:	Evaluation of Heavy metals occurrences in Sediment of Lagos Lagoon using Environmental Indices
Type of the Article	Case study

General guideline for 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 guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	Author's comment <i>(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)</i>
<u>Compulsory</u> REVISION comments	11. "concentrations in the remaining four stations were within the permissible limit of 40mg/kg of USEPA and DPR": Expand USEPA and DPR with references if not done in the text. 12. sampling station analyzed during the two season: define which season, wet season as prior? 13. stations during the wet and dry season hence, reflecting their natural background levels in the sediment: There is a global study on natural background levels in sediment of the area for the elements study if so I suggest to show data e references. 14-15. The concentration of As detected in all the sediment analyzed exceeded USEPA of 9.8 mg/kg while station 5 had the highest concentration of 72.86 mg/kg in the dry and 89.65 mg/kg in wet seasons respectively: These value are very interesting need to be compared with the background value and study the origin of As since it is very dangerous elements. 16. define ($p < 0.05$), if not done in text. This can be defined just one time for all the times that they cite it. 17. while As and Mn are not significantly correlated between the two seasons. I wonder if it possible to explain why? Some little mistake in English 19 in sediment for the two seasons is significantly correlated at (α level=0.05 and 0.01): define alfa level if not done in text.	All the comments have been read and digested. Proper adjustments and corrections have been made where necessary to all the concern areas. The suggestions have also been reviewed. Thank you.



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	20 Assessments of heavy metal contamination in sediment require knowledge of pre anthropogenic metal: I would suggest more than preanthropogenetic which is nearly impossible I suggest the background study of all the elements of the rocks and sediments. 22 above index showed that the study area have very low degree of metal contamination. This is ok as final statement but the value should always be compared with the natural survey background of rocks and sediments and when possible of the matrix of the area under study. 31-32 Wastes of anthropogenic origin often contaminate the Lagoon and creek in Lagos [1].: That is okay. I would prefer since the paper treat of dangerous contamination to detail the responsibility to defend the people more subje at such contamination like the people that live in poverty that are a waste majority in Africa. 33. Majority of the debris are largely plastics, nylon bags, empty cans of food and drinks, glass bottles, used needles and syringes and used car tyres etc.: find way to decrease such waste. 33-37 I see some English mistake suggest that an English man check the English of all the paper for a better flow. 34. The contamination of sediment is one of the main environmental problems that are often mandatory for frequent evaluation in order to maintain the aquatic biota and 70% of Lagos Lagoon is a reservoir (this sentence to me does not make sense or is missing something or English is not perfect) for industrial, surface runoffs, and domestic discharge (highlight the responsibility of the contamination especially if it is from big industry otherwise if it is a people behavior start to educate to protect the environment) as well as input	
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	from several rivers [2]. (1) Increase number of references especially at international level since this study are well study from many western country (e.g., USA, Norway, Italy). 39 [3]. Increase number of reference comparing with International study especially those that individuate those elements as extremely dangerous 42 environment [5]. Increase number of reference and try to found a way to solve this important problem! 44 sediment sample thereby, affecting aquatic biota and causing risk to consumers of aquatic seafood [6]. Increase number of reference trying to found important solution. Corrosion of bedrock 47 and soils leads to 48 accumulation of sediment of current natural and anthropogenic activities as well as their component [8].: I would individuate the anthropogenic activity and find the solution according to me any environmental study impact worldwide must have contribution about problem-solution. 49 The major contributing factor to metal contamination in the sediment are through numerous pathway such as industrial disposal of liquid effluents, surface runoff, domestic discharge and leachates carrying chemicals originating from numerous urban and agricultural activities as well as atmospheric deposition [9]. Compare your evidence with other study at international level, because there are many scientist that work on this important problem. Put reference and analyze them. 52 anthropogenic on the broader environment since sediment is the final sink for metals accumulation. (this concept has been repeated in different forms many	
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	time that is needed to be stated strongly with support of other international study. 59. the ecological deduction that can be made from the results using contamination factor, degree of contamination and pollution load index tools. Define geochemically (contamination factor), (degree of contamination) and (pollution load index tools) and from which references comes from. I think in this section the authors must define this parameters. Table 1, the table is okay, I suggest some description must be addressed to the national and local political especially on the description of station 1. Sampling collection section is very good I would suggest to compare their method at an Italian scientist Benedetto DE Vivo who from many years research the issue. 86 1. Contamination factor: The extent of contamination of sediment by a metal is often expressed mathematically in terms of a contamination factor calculated by = ...Equation [1] 2. Degree of contamination (Cd) :This is used to evaluate the extreme values of monitored elements in soil sediment samples.16 it is express mathematically (why only sample16?), it is expressed as given in Equation 3. C_iF is the contamination factor for the i-th element. $Cd = \sum C_iF$.....Equation[2] Where (Cd) <6 refer to Low degree of contamination, $6 \geq Cd \geq 12$ mean moderate degree of contamination, $12 \geq Cd \geq 24$ refer to high degree of contamination and $Cd > 24$ refer to very high degree of contamination 3. Pollution Load Index (PLI): this is used to evaluate specific sampling site, according to the method	
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	proposed by Tomilson <i>et al.</i> [11] and it is expressed as: Equation [3] I am sorry I thought that the authors gave for granted the statistic. Thank you so much for what they did compare the statistics with the study of an Italian scientist Benedetto De Vivo. 110. The metals are arranged in terms of their occurrence in the sampling station during the dry season as follows: 111 Mn>As>Zn>Pb>Cr. While the mean metal concentration arrangements for wet season as follows: Mn>As>Pb>Zn>Cr. That is ok as way of classification I would suggest to introduce study of medical geology for the impact of such metals to the people more subject a such contamination like the poverty of the Nigeria. 114 The highest mean metal concentration values for Mn and Zn were registered at Station 6, while Station 4 and 5, respectively, recorded the highest mean metal concentrations for Pb, As and Cr in the dry season; these was expected due to large number of fishing vessel (you cannot stop fishing FIND SOLUTION FOR THE PEOPLE THAT WORK ANF LIVE FISHING) and fuel dispensing points concentrated at these sample stations. 104 1. Evaluation of Heavy Metal Concentrations according to Mean and one way-ANOVA using Duncan multiple ranges test. (explain ANOVA and Duncan multiple ranges test if after explained as before I excuse) 120 ANOVA was used to establish whether cluster of variables have the same means on data that are continuous distributed and with homogeneous variance using Duncan multiple range. That is okey compare with the research of an Italian (Università di Napoli)	
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	Benedetto De Vivo. Look critically to all his paper and compare. 127 geochemical background value. That is okey as an approximately value but you need a study more detailed where you involve also GIS techniques (open or Commercial: refer for more detail to Benedetto De Vivo Università di Napoli, he may help to continue a deepen your study)) because any study need a detail study on the background value. 151 as of As you must indicate a medical study as for all other elements. I affirm this is very important for you in Nigeria as in all the other industrial country in the world because the contamination hit always the poverty. 154 As is not significantly correlated between the two season. Explain why since As is very as repeated very dangerous. 162 Evaluations of the chemical contaminations in the sediment were estimated by comparison with the sediment quality guideline proposed by United States Environmental Protection Agency [13]. This is okey for USA but not the industrial country have the same guideline some more sensitive to the environment has guideline more detailed (for discussion refer to Benedetto De Vivo, Università di Napoli Federico II) 170-179 evaluate why there is difference of contamination between different stations. Do not include in the evaluation the poor people because are the people more hit from the contamination. 189 contamination especially with hazardous metals Pb and As. Find solution before you apply your expertise better will be for the environment and the poverty. 196-233 the data that you have presented although better presented but with missing basic research in	
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	environmental impact is important and well written. Anyhow, you highlight several metal contamination this has to be taken very seriously to improve the situation. You of course cannot compared to the situation of Italy (Napoli, Terra dei Fuocchi) where there are an high impact of pollution with many rate of cancer especially for the baby and children. As a conclusion any environmental study must need as initiation the contamination but after has to be taken in consideration the relationship with the animals and humans especially the species that are more without defense.	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		