

Review Form 1.6

Journal Name:	Archives of Current Research International
Manuscript Number:	Ms_ACRI_86590
Title of the Manuscript:	ASSESSMENT OF BACKGROUND GAMMA RADIATION LEVEL IN SELECTED DUMP SITE OF NIGER DELTA, NIGERIA
Type of the Article	Original Research Article

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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 (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)
<u>Compulsory</u> REVISION comments	<p style="text-align: center;">Abstract:</p> <p>Comment 1: The mean equivalent doses and annual effective dose equivalent are having same unit? Pl cross check which is correct µR/h or mSv/y?.</p> <p>Comment 2: It is mentioned ... their mean equivalent doses are 1.16, 1.18 and 1.11 mSvy⁻¹ respectively. Not seen your Table 1, 2 and 3. Kindly incorporate if possible.</p> <p style="text-align: center;">Introduction</p> <p>Comment 1: The some of the sentence are not clear. Example. "Natural radioactivity from the environment is classified into three: Cosmic rays, terrestrial radiation and ingestion....." Pl change the sentence as "Natural radiation from the environment is classified into two: Cosmic rays and terrestrial radiation". If not, please provide standard reference.</p> <p>Comment 2: Please remove the sentence starting from "Human exposure to natural radiation exceeds that from all man-made sources (Medical, weapons testing and nuclear technologies) put together". Or pl provide appropriate reference.</p> <p>Note: Actually 87% due to natural radiation only 13% due to artificial radiation.</p> <p>Comment 3: If possible, the first two paragraphs may be replace or rearrange with proper continuation in Introduction part.</p> <p>Comment 4: I have noticed that TLD (Thermo luminescent dosimetry) measurements have been reported by Farai and Vincent (2006) in outdoor. Is it outdoor or indoor?. Kindly check that article and quote properly.</p> <p>Comment 5: Pl avoid such sentences viz.... "The radiation can cause injuries and clinical symptoms"... Note: In radiation research, pl ensure the standard references viz., UNSCEAR, ICRP, IAEA etc..</p> <p>Comment 6: Pl mention aim of the study or scope of the study in end of the introduction paragraph if possible.</p> <p style="text-align: center;">Materials and methods</p> <p>Comment 1: In sentence.. "for general purpose monitoring of radioactivity" change it as "general purpose monitoring of background radiation".</p> <p>Comment 2: Pl provide the standard reference for the sentence stating from "Measurements were taken within the hours of 11.00 am – 3.00 pm since exposure rate meter has a peak response to environmental radiation within these hours". Or if possible provide the optimum value of exposure rate.</p> <p>Comment 3: uGy/..... kindly check it properly</p> <p>Comment 4: $1\text{mRh}^{-1} = \frac{0.96 \times 24 \times 365}{100} \text{mSvy}^{-1}$ What is meant by 0.96. pl incorporate in your manuscript</p>	Revised

Comment 5: I have noticed that the conversion for absorbed dose rate to $1\mu\text{R/h}$ with different references are given below. Which is correct or pl specify one. It will be confused for readers.

According to (Avwiri et al., 2013), the generated data were converted to absorbed dose rate nGy^{-1} using the relation for the external exposure rate as follows:

$$1\mu\text{R/h} = 8.7\text{nGy/h} = 8.7 \times 10^{-3} \text{ uGy/ (1/8760y)}$$

Absorbed Dose Rate (D) The data obtained for the external exposure rate in μRh^{-1} were also converted into absorbed dose rates nGy^{-1} using the conversion factor (Arogunjo et al., 2004; Avwiri et al., 2013):

$$1\mu\text{Rh}^{-1} = 8.7\text{nGy}^{-1} = \frac{8.7 \times 10^{-8}}{\left(\frac{1}{8760\text{y}}\right)} \\ = 76.212 \text{ uGy}^{-1}$$

Comment 6: PI check the sentence properly.. “Annual Effective Dose Equivalent (AEDE) The computed absorbed dose rates were used to calculate the Annual Effective Dose Equivalent (AEDE) received by the market users”.

Comment 7: the occupancy factor for outdoor of 0.25... reference pl or As per standard reference, the occupancy factor is 0.2 reported by UNSCEAR. PI cross check your results.

Comment 8: The flaw of the sentence.... the occupancy factor for outdoor was calculated based upon interviews with traders. People of the study area spend almost 6 h outdoor due to the nature of their routine. If possible need a clarity.

Comment 9: As per literature, “Excess Life Cancer Risk (ELCR)” parameter was introduced in soil samples of primordial radionuclides (^{238}U , ^{232}Th and ^{40}K) by Taskin et al., 2011 or 2012. Not mentioned in any standard references viz. IAEA, UNSCEAR etc. The exposure rate, equivalent dose rate, absorbed rate and annual effective dose equivalent are good sufficient.

Results and Discussion

Comment 1: In Table 1, It was mentioned the Equivalent dose rate unit is $\mu\text{R/h}$. In Table 2 it was mSv/y ?. In Table 3, it was Average radiation level ($\mu\text{R/h}$). Which is correct?. Kindly check the units properly for entire manuscript.

Comment 2: In Table 1, 2 and 3, it is mentioned that the recommended limit of 0.29×10^{-3} for excess lifetime cancer risk. In Result and discussion part, the recommended limit is 0.029×10^{-3} . PI ensure that the value which is correct and reference.

Comment 3: PI provide the unit and reference. The sentence starting from the annual effective dose calculated is 0.20 ± 0.03 , 0.19 ± 0.03 and 0.27 ± 0.06 for Iguruta and Aluu dumpsite respectively which is lower than the recommended value.

Comment 4: Figure caption is not clear. PI mention that the which radiological parameter is used for Cotour map. Ex. Equivalent dose rate or annual effective dose or..... etc.

Conclusion:

Comment 1: PI ensure the sentence.... in good agreement with those determined in other studies. Comparative analysis is made?.

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	Comment 2: It was mentioned in “the radiation level of the study area are relatively low” and “excess lifetime cancer risk and the absorbed dose which was higher than the safe values”. Low or higher?.. PI modify the sentences accordingly.	
Minor REVISION comments	It is mentioned in above paragraphs.	Ok
Optional/General comments	Comment 1: Please check all the radiation units are properly in appropriate places. Comment 2: PI ensure the grammatical and technical errors in entire manuscript.	Corrected

PART 2:

	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>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	