Review Form 1.6

Journal Name:	**Journal of Materials Science Research and Reviews**
Manuscript Number:	**Ms_JMSRR_76526**
Title of the Manuscript:	**Characterization of Graphite Mineral of Ningi in North-Eastern Nigeria**
Type of the Article	**Original Research Article**

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** *(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)*
Compulsory REVISION comments	**1) My general feeling is that the results are provided but not discussed thoroughly. In your introduction, you state that "…*this paper presents a summary of the characterization study on Ningi graphite as a means to assess the technical and economic viability of the deposit.*" What do the characterization results presented in this paper tell the reader about the technical and economic viability of the Ningi deposit? For instance, you state that "*Therefore, the chemical analysis summarily reveals that Ningi graphite is a low-grade graphite with high silica content.*" Does this imply that the low-grade will not be able to balance the costs associated with mining and processing? Do you have an estimate of the reserve size? Similarly, you say that: "*This suggests that the sample ore contain Quartz-sillica, Feldspar, and Mica, as a dominant inclusion*." These minerals can be separated from graphite via froth flotation, and processing would be relatively simple. Can you also comment on the flake size?** **2) My second concern is regarding the introduction section. The information provided in the introduction can be found in any textbook on carbon e.g. the hardness of graphite is common knowledge and does not have a direct connection with your study. For me, a good introduction provides the reader with a general background on the problem trying to be solved, followed by a "zoning in" on the specific problem, and finally presenting the aim and objectives of the study. This way, the reader can follow your logic and motivation for completing the study. In your case, I would start with a background on the supply and demand issues of graphite. Then I would move to the possible solutions to fill the gap between supply and demand e.g. recycling, synthetic graphite, or finding unexploited reserves of natural graphite. For the latter, Africa has been identified as having potential for untapped natural graphite sources, and hence your study. Finally, end with your aim and objectives (as you have done in the last paragraph of your introduction).** **3) I believe that the conclusion of an article should not be a repetition or a list of your results. I suggest using this opportunity to conclude whether or not it is viable to exploit the Ningi deposit based on your results. In other words, you should answer your research question (*"…characterization study on Ningi graphite as a means to assess the technical and economic viability of the deposit."*). Furthermore, I suggest you include information on possible future studies e.g. structural characterization (Raman, XRD crystallography) of Ningi, beneficiation and processing studies on Ningi, ore reserves, etc.**	
Minor REVISION comments	**1) Throughout your manuscript you refer to using bomb calorimetry to determine your carbon content. However, in your results section, you state that you have used proximate analysis to determine the carbon content. The latter makes more sense to me seeing as bomb calorimetry is used to determine the heating value and not the carbon**	

	content. Please make sure that you are consistent throughout the manuscript and use the correct terminology. **2) In your results section you state that you have done ultimate analysis, however, you have not presented the results of the ultimate analysis. Please include the results (if you have these available) seeing as it will contribute significantly to your study.** **3) In your abstract you say that you have used wavelength dispersive XRF. However, in your procedure section, you mention that you have used energy-dispersive XRF. Please make sure that you are consistent throughout the manuscript.** **4) In your abstract, add a conclusion on whether or not it is possible, based on your results, to exploit the Ningi deposit.**	
Optional/General comments	**This paper addresses a current and relevant topic; namely the availability of a critical resource (graphite) used in 4th industrial revolution applications. If the revisions suggested in this review report are addressed, I believe that this paper would be a good contribution to the Journal of Materials Science Research and Reviews. I recommend some minor language editing from the authors.**	

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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