



SDI Review Form 1.6

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2013_BJAST_7961
Title of the Manuscript:	Environmental Impact of Metal and Metal Containing Wastes on the Heavy Metal Content of Leachate and Soils of the Aba-Eku dumpsite, Ibadan 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.

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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	Line 56-62: please relate/indicate the sites on the location map Section 2.2. Samples and sampling: number of samples (except for soil) and sampling spots are not indicated. Section 2.2.3: Hydrofluoric – Perchloric - Nitric acid digestion extracts metals from all phases including soil minerals. How can we believe that the metals' (Cd & Pb) concentration is merely related with the waste material? Tables 2-6: I think it is better to combine the tables in to one to save paper pages and avoid redundancy. Section 3.2.1. line 208-211: if the dumping is ongoing, you may have predominant type of solid wastes (SW) dumped on each month; if the landfill is non-operational, temporally progressive decomposition may influence your dominance of the SW fractions as reflected in the PCs. Please verify.	The sites have been indicated on the location map (Fig. 1; lines 58-60). Section 2.2. Samples and sampling: Corrected, lines 74-75, as well as Fig. 1. Section 2.2.3: Explanation is given in lines 64-73 of page 22. Tables 2-3 illustrate the effects of the solid wastes disposed on the soil quality. Even though this form of digestion would remove Cd and Pb from the soil mineral phase, note the magnitude of these elements in soils of the dump site versus the control. Assuming the Cd and Pb in the control is from the soil mineral phase only, the significant increase in Cd and Pb contents in the dumpsite soils suggests that the bulk of the Cd and Pb inputs is from the solid wastes dumped. Consider also the fact that the soil has high levels of metal and metal containing wastes (Fig. 2). These facts suggest that even though there may be a contribution from the soil mineral phase, the bulk of Cd and Pb in the soil originate directly from the wastes dumped. However, there is likely to be input from the soil mineral phase. Although, this input is likely to be minimal, as reflected in the levels of these elements in control soil. Tables 2-6. Tables have been combined into one, now Table 2. Section 3.2.1. The landfill is still operational (line 53). Table 1 (line 155, page 5) shows that



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		metal wastes were the predominant waste type on nine out of the eighteen month sampling period. This likely influenced the dominance of that waste fraction as reflected in the PCs. See also lines 68-73, page 22.
Minor REVISION comments	Title: remove 'metal and' in line 3; change 'the Heavy Metal' to 'Cadmium and Lead' in line 4 since the focus is on these two metals only. Abstract: conclusion should include conclusive suggestions not stating 'they are discussed' Line 27: change 'as obtains' to maybe 'common' Line 28: after 'produced' add 'thereafter' or 'consequently'. Line 33-34: the statement 'It is also useful for predictions' needs explanatory phrases. Line 38: 'this' to 'such waste types' Line 42: remove 'metal and' Line 49: km 13' to '13 km' Line 84: 'when' to 'they are' Line 99-100: confusion on how soil and solid waste samples can be collected from the same spot Figure-2 is placed far away from its citation and better to use histograms or patterns than colours Tables: citation should be made for each tables in the respective sections Line 123: does 'seven of these contributed $\geq 5\%$ to the overall waste composition' refer to Table 1? Tables 2-7: 0.00mg/kg should be noted as below detection limit of the analytical instrument and please include unit in table 7 Figures 3-12: remove the notations and use legends to avoid crowded figures	Corrected, lines 4-5. Corrected. Corrected. Corrected, line 29. Explanatory phrases have been included (lines 35-37). Corrected, line 42. Corrected, line 46. Corrected, line 54. Corrected, line 90. Paraphrased for clarity, lines 106-107. Figure 2 has been placed next to its citation and the figure has been changed accordingly. Citations have been made for each table, lines 120-122, 140. No, Fig. 2. Corrected. Corrected, lines 158-166. Figures 3-12: The notations are to highlight patterns of locations of the variables and



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	Section 3.3 : Should be Section 3.2.2. and so on; the title ‘PCA for solid waste fractions, soil and leachates’ better be ‘PCA of Pb and Cd in solid waste fractions, soil and leachates’ Acronyms: give full names at least once when you first use it; for instance WHO and FMEnv Discussion part: page 22 Line 6: what are the ‘metals’? the description metals fraction in line 7-9 should have come earlier to avoid the otherwise vague metal fraction. The statement starting with ‘The results suggest...’ in Line 34 should be merged with next paragraph Page 24 line 114: ‘are discussed’ please give summary statements instead	observations in the loading and scatter plots of the PCA respectively (essentially to highlight a pattern), while legends serve for labelling where color patterns etc. are used. It is therefore not clear how legends can be used in this regard. Moreover, if used at all, legends may make these patterns less distinct and unclear to the reader. Acronyms: Corrected, lines 5-6, pg 21. Discussion part: Corrected, lines 7-9, 36. Summary statements are given in lines 115-117.
<u>Optional/General</u> comments	The paper has clear focus, strong innovation and the applicability level is high. The results are extended and the PCA might be re-computed with Pb and Cd in the major SW fractions, soil sample and leachate. This could also help to validate the PCs. It can be published with the comments amended.	