



SDI Review Form 1.6

Journal Name:	Asian Journal of Environment & Ecology
Manuscript Number:	Ms_AJEE_34143
Title of the Manuscript:	A GIS APPROACH TO EROSION VULNERABILITY ASSESSMENT OF A DEVELOPING CITY
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	-Why the study area? What are some of the indicators of soil erosion in the study area? -fig 4 is a relief map and not a slope map. Slope is either in degrees or percent rise. -erosion vulnerability is a three factor combination: 1. Rainfall erosivity or rainfall aggressivity 2. Soil erodibility. Relative ease with which soil can be detached. 3. Topography (slope steepness and length) GIS-based analysis either uses the Universal Soil Loss Equation (USLE) of Wischmeier and Smith, where erosion vulnerability is a function of $R \times K \times LS$, where R, K, and LS factors correspond to 1, 2 and 3 above respectively. Or use overlay weighting analysis in GIS. See Saini S. S., Jangra R., Kaushik S. P. (2015) Vulnerability assessment of soil erosion using Geospatial Techniques-a pilot study of Upper Catchment of Markanda River. <i>International Journal of Advancement in Remote Sensing</i>, GIS and Geography, 3: (1) 9-21. Also see: -Bergsma E., Charman P., Gibbons F., Hurni H., Moldenhauer W.C., Panichapong S. (1996) Terminology for soil erosion and conservation, 322p -Fournier F. (1962) Map of erosion danger in Africa south of the Sahara based on aggressiveness of climate and topography. Commission for technical cooperation in Africa, European Economic Community. -El-Swaify S. A., Dangler E. W., and Armstrong C. L	The study area was chosen because there are several gully erosions in the area. Secondly it lies on the undulating portion of the Awka-Orlu Cuesta and this area is fast developing from a rural settlement to an urban centre. ---- <i>We have added this reason in the body of the work as requested.</i> The GIS software produced fig 4 as slope and not necessarily as relief map. The hue used was actually designed to come out in percent or degrees but it came out as interval scales but it served the purpose we wanted. We agree that erosion vulnerability is a function of three factors erosivity, erodibility and topography/slope. The context of this work however is to assess the influence of LULC. LULC can accelerate or influence rainfall erosivity in the form of runoff generated from impervious cover. However, we have added more information. The references provided are being sourced for as additional materials to enhance the second part of this study



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	(1982) Soil erosion by water in the Tropics. College of Agriculture and Human Resources, University of Hawaii, Research Extension Series 024,184p. On reference section: It should be: Wischmeier, W. H., Smith, D. D., (1978) Predicting rainfall erosion losses – a guide to conservation planning. USDA/ARS, Washington, D. C., (Agricultural handbook n° 537), 58p. -Ahmad, 2013 is not on reference list.	Noted
<u>Minor</u> REVISION comments	-In methodology, the methods of erosion vulnerability assessment is not clear -Details on how fig 5 was generated needs to be added in the methods -Why are areas within the elevation of 140m- below highly prone to flood and erosion?. Flood doesn't equals erosion. Flood is the tendency of water ponding on the surface, whereas erosion is a function of runoff velocity and terrain characteristics. (McCool et al., 1995) established that soil loss is much more sensitive to changes in slope steepness than to changes in slope Length.	We are constrained by space and length of paper The areas within the elevation of 140 m is prone to erosion because the slope is gentle and lengthy. The length of the slope generate runoff as against steep slope, this has been proven in the field and lab by Amangabara 2014 and agrees with Ahmad, 2013. Secondly, slope is actually not the only factor that is responsible, the soil condition as well the underlying geology which is poorly sorted and pebbly also contributes. But the comments of the reviewer are taken note of and have been incorporated in the work. Thank you.
<u>Optional/General</u> comments	The use of slope factor as the sole factor for erosion vulnerability assessment is grossly insufficient since soil erosion vulnerability and actual soil loss or erosion is triggered by many factors. ANY of the TWO approaches in compulsory comments is best.	Soil erodibility factor is added to the work and highlighted in yellow The manuscript title has also been slightly adjusted.