SDI Review Form 1.6

Journal Name:	**British Journal of Applied Science & Technology**
Manuscript Number:	**2013_BJAST_7066**
Title of the Manuscript:	**Geospatial Analysis of Coal Mining Impacts on West Virginia's Environment**
Type of the 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	**I cannot determine if there is any information of novelty in the results, but I have the impression most of the information has been compiled from published reports. The statistics the authors presented on land-cover change definitely were derived from geospatial analyses. As far as I can determine, the geospatial analyses were very elementary and lacked insight into the characteristics of remotely sensed data and associated error. Additional details are provided below, including a short bibliography on their research topic that the authors may find helpful.** **Poor writing** **This paper requires major attention by an experienced technical editor. The writing is so poor it is not possible to decipher much of what the authors describe. Surprisingly, Appendices B and C were much better written, which made me .** **Aside from the technical writing problems, I found it disconcerting the collective coauthors did not exercise care in executing any sections of the manuscript (other than Appendices B and C), even in places they merely needed to copy published information, such as for references and abbreviations/acronyms. Some examples:** • **The References section should have been a**	

	straightforward exercise in transcribing information. They do not follow the format prescribed in the online guidance for authors. Examples from three consecutive listings: **1) The Kwalie 2005 reference fails to include the coauthors and does not have the title listed correctly.** **2) The Lindberg 2008 reference fails to list the coauthors, does not include the lead author's middle initial (as it occurs in the publication), has the year listed incorrectly, includes no volume or issue number, and does not have the correct title.** **3) The McIlmoil 2010 reference fails to list the coauthors and does not list that the venue of the publication is a report.** • **There are multiple errors in the list under Definitions, Acronyms, Abbreviations. The definitions for MHST and USGS have incorrect words and/or spellings, and the word "The" is not a formal part of the names for MHST, EPA, or US.** **<u>Unfamiliarity with the literature on the topic</u>** **The authors' motivation for the paper was to perform a geospatial analysis of the growing environmental impacts of coal mining activities in West Virginia. The authors identified a gap in the literature on this topic. It appears the principal gap was in their literature search. The authors seemed well aware of the economic literature on coal mining, but demonstrated little awareness of the literature on geospatial and other environmental analyses of land-cover changes in West Virginia regarding mountaintop mining.**	

	Below is a small subset of available references that should be of interest to the authors. In particular, I draw their attention to the suite of geospatial methods reviewed by Slonecker and Benger in a paper that, itself, provides many additional citations on the topic. **Buehler, DA and Percy K (2012). Coal mining and wildlife in the eastern United States – A literature review. Online white paper, 15 January 2012, University of Tennessee. http://www.appalachianwildlife.com/Coal%20Mining%20and%20Wildlife%20in%20the%20Eastern%20United%20States-final%20draft.pdf** **Campbell JE, Fox JF, Acton PM (2012). Terrestrial carbon losses from mountaintop coal mining offset regional forest carbon sequestration in the 21st century. Environmental Research Letters 7:045701. DOI:10.1088/1748-9326/7/4/045701).** **Griffith MG, Norton SB, Alexander LC, Pollard AI, LeDuc SD (2012). The effects of mountaintop mines and valley fills on the physicochemical quality of stream ecosystems in the central Appalachians: A review. Science of the Total Environment 417-418:1-12.** **Lutz, BD, Bernhardt ES, Schlesinger WH (2013). The environmental price tag on a ton of mountaintop removal coal. PLOS ONE 8(9):e73203.** **Maxwell AE, Strager MP, Yuill C, Petty JT, Merriam E, Mazzarella C. (2011). Disturbance mapping and landscape modeling of mountaintop mining using ArcGIS. White paper in proceedings of the 2011 Environmental Systems Research Institute (ESRI) Users Conference, 11-15 July 2011, San Diego. http://proceedings.esri.com/library/userconf/proc11/papers/3086_9.pdf** **Pond GJ, Passmore ME, Borsuk FA, Reynolds L, Rose CJ (2008). Downstream effects of mountaintop coal mining: Comparing**	

	biological conditions using family- and genus-level macroinvertebrate bioassessment tools. Journal of the North American Benthological Society 27(3):717-737. **Slonecker ET, Benger JM (2001). Remote sensing and mountaintop mining. Remote Sensing Reviews 20(4):293-322.** **Strager MP, Fletcher JJ, Yuill CB (1998). Hydrologic modeling for acid mine drainage in West Virginia. White paper in proceedings of the 1998 Environmental Systems Research Institute (ESRI) Users Conference, 27-31 July 1993, San Diego. http://proceedings.esri.com/library/userconf/proc98/proceed/to500/pap478/p478.htm** **U.S. Geological Survey – has published a large report on land-cover trends across the eastern United States, as documented from satellite imagery. Because U.S. government web sites currently are offline because of the shutdown of the federal government, I am unable to provide a citation or link for this report. it should be easy locate (try searching on USGS Land Cover Trends eastern report) once the sites have been restored.** **Wickham JD, Riitters KH, Wade TG, Coan M, Homer C. (2007). The effect of Appalachian mountaintop mining on interior forest. Landscape Ecology 22:179-187.** **<u>Failure of the authors to meet their own goals for the paper</u>** **The authors stated four goals for the paper: (1) use spatial technology to analyze environmental effects of coal mining, (2) generate a tool for effective management of environmental resources, (3) design a decision support tool, and (4) contribute to the literature. To the extent I can interpret what the authors have done, their use of spatial technology appears much more elementary than the average GIS application in the literature. I have difficulty**	

	discerning where/how/if Goal 2 was addressed, and definitely do not see where the authors addressed Goal 3, other than to say a GIS is needed to support decision-making. I would argue Goal 4 does not need stating, as it is implied with the submission of a paper to a peer-reviewed journal. For example, states regularly publish reports on surface water quality and impairments (a requirement stemming from the Clean Water Act), complete with maps referencing quality and impairment issues by stream reach and watershed. So, I am uncertain what the authors are offering that is not available from other published sources. **The Methods section provides so little information on source data compiled or procedures followed there is no way to assess the validity and value of the work. A methods section should provide adequate information to enable other researchers to try to reproduce results. Here, there is no way even to begin that process. The authors are very vague on their source data, all of which should have been cited in detail, and what they do mention leaves me more confused than informed. For example, the authors mention using NASA satellite "photo" images; yet, satellite images are not collected with a camera and are not photo products. NASA does have some photos archived, such as the declassified Corona photos from old spy planes, and many aerial photo products are available from other U.S. agencies (such as the Department of Agriculture) and from states, but these are not mentioned anywhere in the paper, so may not have been used.** **Related to the vagueness of the source data is the vague way in which the authors discuss their**	

	analytical approach. The authors state in the paper that "There is no attempt here to describe the processing of the photo images since it is beyond the scope of this study." I would expect the data source and methodology applied for image analysis to be central to the scope of this paper, rather than outside the scope. **<u>Other irksome characteristics</u>** **Reference by the authors to a laundry list of publications by Merem and Twumasi in Section 1.1 is unnecessary, as not all these publications have anything to do with the topic of the paper. Although I was not provided with the names of the authors for this manuscript, the seemingly exhaustive list of references for Merem and Twumasi left me to surmise one or both are authors on the current manuscript, and that they included this list as a means to boost their citation index statistics. Regardless if I am correct or incorrect, this is the impression conveyed.** **I always have seen "mountaintop" presented as a single word for the topic of mountaintop mining. These authors have chosen to use two words, which may be within their purview, but they have revised the spelling from one word to two words in the published titles of several of the cited references, which is not appropriate.** **The resolution of the figures is insufficient to view the information.**	

Minor REVISION comments		
Optional/General comments	Please see my comments following the bottom of this review form.	

Note: Anonymous Reviewer