

Vulnerability Assessment and Optimization Countermeasures of the Human-Land Coupling System of the China-Mongolia-Russia Cross-border Transportation Corridor

Overall assessment.

The topic of the paper is interesting combining geographic and environmental studies. It contributes the relevant literature with the construction of a vulnerability index for the assessment of the Human-Land Coupling System (HLS) which is used to evaluate the special case of the China-Mongolia-Russia Cross-border Transportation Corridor (CMRTC). The paper is also useful because it provides, in its policy implications part, noticeable propositions to decision and policy makers of the relevant countries.

In my view the major lack of the paper, especially for the non-specialists in geography and environment, is the brief (if any) explanation of the methods and the data sources used in order to have the authors' findings. I think that the authors should provide the necessary even the basic references on the methodology and add some lines to explain, e.g., the "overlay analysis" and the "entropy weight method". They should also provide more details for their data sources.

They also need to pay much more attention to English syntax.

More specific comments.

1. English language: The paper needs to improve *significantly* for English. **Please, consider this, as a major comment.**
2. Abstract. As in many cases at the main body of the paper, the authors repeat systematically the same words even in the same or the next sentence (English syntax). This is really tiring and especially in the first two sentences of the abstract exposes the paper unnecessarily.
3. Introduction.
 - a. There is no reference upon either the methodology to be used or the general finding of the paper.
 - b. I would also expect to read some references from the literature on other relevant studies.
 - c. There is also missing the last paragraph concerning the structure of the paper.
4. Models and Methods.
 - a. The Figure 2 is an essential tool for the explanation of the methodology used by the authors. However, for non-specialists in geographic or environmental studies the crucial methods must be explained in more

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details in the followings (or even within the Figure, if possible). For instance, the authors should explain and give the relevant references on the “overlay analysis”, or the “natural breaks”. This is partially done for the “index weighting” and “Entropy weight method” (§ 3.2). **Please, consider this, as a major comment.**

- b. In the Table 1, for the X10 factor of the “precipitation reduction”, I don’t understand the expected negative correlation.
 - c. What does it mean the abbreviation NDVI for the X11 factor (in Table 1 or in line 145 etc.)?
 - d. In equation (5), I can’t understand the k before the summation symbol in the denominator.
 - e. In table 2, I would propose the authors to sort the indicators in descending order based on the estimated weight. This is an important finding which does not appear properly.
 - f. Please give references for the ArcGIS 10.2, even a URL on the internet (page 7, line 223).
 - g. In § 3.3 “Data Sources” (not Source), please provide more information such as the URL on the internet.
5. Results. No comment. The authors made an excellent work here. Congratulations!
6. Conclusions. At the end of this section the authors could propose some issues for further research.

Sincerely,