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Natural Hazards and Earth System Sciences
Discussions

# *Interactive comment on* "Predicting social and health vulnerability to floods in Bangladesh" *by* Donghoon Lee et al.

**Anonymous Referee #1**

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Generally, the manuscript is very well written and provides an innovative and simple approach to assess vulnerability. The structure of the paper is clear. Data and methods are well explained, and possible lacks are explained in detail. The title is appropriate and reflects what is reported in the document. I have few minor revisions to propose. In my opinion, the authors should improve and clarify some terms used in the manuscript such as "indicator", "index", and "score". I suggested specifying the meaning of these terms referring to the existing bibliography. The figures are for the most part clear and well organized but cartographic elements such as the North and scale bar should be added at least for the first one, as well as the presence of UTM coordinates on grids.

The references are relevant and sufficient. However, some statements need to be supported by references, in those cases indicated in the revision, they must be added.



Here below specific points and minor issues.

Abstract The abstract is clear and short. I do not have any suggestions

Introduction For this chapter, I have just one suggestion. The authors produce a good explanation of the work and the importance of it in a Bangladesh contest. Moreover, sentences are followed by proper references. My suggestion regards the absence of a location map. For the readers, it would be very useful to have a location map reporting the altitude and some locations mentioned in the manuscript ("Dhaka", "Chittagong", "Haor basin"). This can guide the reader to focus on the more interesting and significant areas of the work itself.

Line 60: "social-health vulnerability (SHV) indicator". Term "indicator is correct? In figure 4 the authors use SHV "index". Please clarify the question of the terms as explained in the general comments.

Data The data sources are well explained. I do not have any suggestions.

Methods Line 139: Please add Index or indicator to "SHV" Line 140 to 142. In my opinion, this sentence has to be reformulated and clarified with more detail. Line 144: "Previous studies". In my opinion relevant references are needed Line 148: A citation is needed after the word "hazard" Line 150: Some citations are needed after the words "etc"

Results The presentation of the results is satisfactory, although in some sentences are too simplified. For example, at section 4.3 the sentence between line 282 and 285 should be better explained and developed. The overestimation due to insufficient data quality should be verified more in detail, overall if the authors declare that the proposed approach is "transferable and easily adapted to different countries". The data quality is not analysed with enough detail. I suggest to spend some lines to explain the possible consequences of the data quality or missing data on the proposed approach. Discussion and conclusion In my opinion this chapter needs to be rearranged. Discussion

and conclusion should be divided in two different chapters. Furthermore, in the discussion chapter, the authors should compare their own approach with other international published approaches. This suggestion is made in order to highlight the quality of the approach shown and which are the advantages compared with other existing approaches. Moreover the sentence “The proposed approach is transferable and easily adapted to different countries to assess vulnerabilities “, is very strong. This approach is used just for a single case of study and in a specific country. I think that this sentence should be reformulated due to the fact that the method has different constrains and should be clear in what conditions of data and knowledge it could applied.

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