

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1  
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## **Comment on nhess-2020-399**

Anonymous Referee #1

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Referee comment on "Integrated Multi-parametric Analytic Hierarchy Process (AHP) and Geographic Information System (GIS) based Spatial modelling for Water logging Susceptibility Mapping: A case study of English Bazar Municipality of Malda, West Bengal, India" by Diyali Chattaraj et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-399-RC1>, 2021

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The article "Integrated Multi-parametric Analytic Hierarchy Process (AHP) and Geographic Information System (GIS) based Spatial modeling for Flood and Water logging Susceptibility Mapping: A case study of English Bazar Municipality of Malda, West Bengal, India" makes an important contribution to the mapping of vulnerability in the face of fluvial seasonality. The methodology can even be applied in other locations, based on the availability of geographic and physical data.

It would be interesting to present population data from the city of Malda in the introduction

In the introduction it was necessary to comment on why the city of Malda was chosen, what are its specificities? What activities would be impaired in flood situations?

All maps need to be presented with better resolution. In figure 1 on the Malda map (zoom 2) put the name of the Ganges River.

It would be interesting to show the percentage of each land use area in relation to its vulnerability (low, moderate and high). Example: x% of the urban area is considered to be of medium vulnerability. In addition, indicate the reason for each class to have a specific vulnerability index. For example, the percentage of urban area in average vulnerability occurs due to factors such as ...

It would be interesting to present a flood map for monsoon seasons, showing the influence

of the rain seasonality in the region. Those at least cite how monsoons could exacerbate vulnerability rates.

There was a lack of contextualization about how this methodology (AHP) comes from other areas and the importance of consulting specialists. It was not clear how you determined the weight for each parameter. Make this clearer in the methodology and discussion.

In your discussion, it would be interesting to show how climate change can aggravate your predictions, increasing the frequency and magnitude of rainfall.

Thank you for the invitation as a reviewer. The AHP method is very useful in several situations, mainly in association with GIS and geographic data.