



















and prevention. The information and results outlined in this research will serve enormous wealth of information for the creation of regional online and print flood hazard atlas in Bangladesh [69]. We believe outcomes of the present study along with the other existing flood hazard maps in Bangladesh will contribute significantly in flood atlas preparation in a regional scale.

Apart from the advantage and implication of this study, we want to mention some of the limitations related regarding mapping to the theme. Distinct LULC classes could be identified and feed into the flood hazard modeling. Since the area is relatively flat, high resolution DEM may provide exact topographic characteristics of the study region. Mouza wise village data, if utilized could have been a realistic depiction of existing population. To overcome these limitation, future work could be implemented through the usage of high-resolution satellite imagery as well as DEM. In addition, ground truth data may be added for LULC accuracy assessment. Flood vulnerability assessment on human properties (settlements and other infrastructure) may lifted the advantage to the future planning in this region.

## 6. CONCLUSIONS

MCE technique proved to be an effective tool for the creation of hazard index in the study area. The flood risk potential in different parts of the study area and their underlying causes might be discernable from the resulted map. MCE aided flood susceptibility analysis has revealed that ~ 55% (~ 12,064 Km<sup>2</sup>) of the study area falls under moderate to high risk zone. Northeastern part of the study found as more susceptible to flooding whilst western part has low risk potential. Population density seems to be the most significant contributor to flooding hazard, as indicated by the high flood susceptibility in places with high population density. Several other parameters viz., LULC, elevation, and precipitation, also have significant impacts on final hazard map. This study should provide a more interactive, meaningful and detailed flood-risk assessment for the relevant decision makers and flood managers at all levels to understand the factors triggering flood inundation. We expect that this study will be able to serve as a prototype to develop a nation-wide flood hazards atlas. This work was done solely in a GIS environment, with very little input from field data. Supplementary information on and an analysis of the field conditions, hydrological status and characteristics of flood-prevention structures are necessary to substantiate the findings yielded from this study, as well as for a comprehensive flood-risk assessment. In order to determine the extent and severity of flood impact in any specific part of the study area in a more quantitative manner, a comprehensive study needs to gather all relevant information from all available sources.

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