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## Geospatial Analysis of Flood Vulnerability Assessment and Mapping in the Bulathsinhala DS Division

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Floods are considered the most devastating hydro-meteorological disaster in the world, which causes the destruction of human lives and properties. Human-induced land use changes, climate change and morphological changes in rivers cause to accelerate the severity and intensity of floods. The Bulathsinhala DS division is highly vulnerable to flood hazards every year due to the overflowing of *Kuda Ganga* from a tributary of *Kalu Ganga*. The main objective of this study is to demarcate flood-prone areas using Geographical Information systems. Geospatial analyses are an appropriate technique for making wise decisions to mitigate the adverse impact of natural disasters. The secondary objective is to assess the vulnerable areas of the Bulathsinhala DSD. Multi-Criteria Decision Analysis (MCDA) was adopted as a methodological process. Rainfall, elevation, slope, Digital Elevation Model (DEM)land use pattern, population density, drainage distance, distance of road network, and building distribution have been selected to assign the weightage under the weighted overlay method. In addition to previous flood records data have been used as secondary data. Each of the flood indicators was reclassified as very high risk, moderate risk, less risk and risk free. The flood risk map revealed that very high risk area covered 24.7 (12.53%) square kilometres, moderate risk areas covered 106 (53.80%) sq km Low risk areas covered 63.4(32.18%) sq. km and areas free from risk areas covered 2.8 (1.42%) sq km. In order to improve the effectiveness of the emergency response support and aid to victims for greater preparedness potential, it is projected that this susceptible flood map would be able to help responsible government bodies.

**Keywords:** *Assessment, Flood, Hazard, Multicriteria Decision Making, Vulnerability*