VULNERABILITY ANALYSIS AND RISK ASSESSMENT FOR FLOOD HAZARD IN RATNAPURA MC AREA, SRI LANKA

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KEY WORDS: GIS (Geographical Information System), DEM (Digital Elevation Model), Hazard, Vulnerable, Risk.
(Footnotes)
[1] Ganga(River)

ABSTRACT:

Most of the natural disasters in Asia are related to flood which cause maximum damage to lives and properties in comparison to other disasters. Most of natural hazards affecting Sri Lanka are water related hazards. An effort was made in this study to identify the vulnerability and prepare risk assessment for flood hazard in Ratnapura Municipal council using GIS. Research area covers within an extent of 20.2 km^2. It is located in the Kalu Ganga basin.Kalu Ganga[1] is the third longest river in Sri Lanka and it is discharges the largest volume of water to the sea. Town is located in wet zone and high annual rainfall is the main cause of flooding. This research is divided into three parts. 1st preparation of flood hazard assessment, 2nd part is preparation of vulnerability analysis and 3rd part is flood risk assessment. GIS technology was used as a risk assessment tool. Gumbel's frequency analysis method and DEM was used for the different flood return period mapping. In addition to field survey data, historical records, building data and population data in words were also important for the success of the analysis. Arc GIS 9, Arc Info 7, ILWIS 3.2, [1]and other statistical analysis software were used for success of the risk analysis.